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Ownership Structures, Capital Structure, and Firm Performance: An Analysis of Post East Asian Financial Crisis

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ABSTRACT

Agency theory embeds the influential relationship that exists between managers and shareholders of firms. This relationship has the potential to influence decision-making in the firm that in turn has potential impacts on firm characteristics such as firm value. Prior evidence has demonstrated an association between ownership structure, capital structure, and firm value.

This thesis extends the literature by proposing a further link between ownership structure and capital structure in term of post Asian Financial Crisis that is rarely investigated. Using an agency framework, I argue that the distribution of equity ownership among corporate managers and external block holders has a significant relationship with leverage and firm performance, and there is reverse causality effect between ownership structure, capital structure, and firm performance. The paper tests eleven hypotheses that explore various aspects of this relationship. This study uses 532 East Asian companies, which are located in seven most affected countries when the crisis took place during period 1996-1997. The time frame of analysis is 2000-2001 period that is believed as a start of recovery period. Statistic methods used for testing the hypothesis are T-test and multivariate regression model.

The empirical results provide support for a positive relationship between external block holders and leverage, a curvilinear relationship between the level of managerial share ownership and leverage and finally, the results are expected that the relationship between external block ownership and leverage varies across the level of managerial share ownership. These results parallel and are consistent with the “active monitoring hypothesis”, “convergence-of-interests” and the “entrenchment” hypotheses which have been proposed in a different context. Meanwhile, the test of reverse causality between ownership structure, capital structure, and firm performance indicates some argument, such as the efficiency-risk hypothesis and incentive signaling approach (relation between capital structure and performance), and the profit-debt-ownership argument in relation between ownership structure and performance.

Key words: Agency Cost, Ownership Structure, Capital Structure, Firm Performance

RESUMEN

La teoría de agencia encaja la relación influyente que existe entre gerentes y los accionistas de empresas. Esta relación tiene el potencial para influir en la toma de decisiones en la empresa que a su turno tiene impactos potenciales sobre características de empresas como el valor de empresa. La evidencia previa ha demostrado una relación entre la estructura de propiedad, endeudamiento, y el valor de empresa.

Esta tesis amplía la literatura proponiendo un nexo entre la estructura de propiedad y la estructura de capital después de la crisis financiera asiática que pocos estudios han analizado esta relación. Usando teoría de la agencia, el argumento que la distribución de propiedad corporativa entre directivos y accionistas externos tiene una relación significativa con el apalancamiento y el desempeño de empresa, y hay efecto de causalidad inverso entre la estructura de propiedad, la estructura de capital, y el desempeño de empresa. Esta tesis prueba once hipótesis que exploran varios aspectos de esta relación. Este estudio analiza 532 empresas del sudeste asiático, que están localizadas en los siete países más afectados cuando la crisis ocurrió durante el período 1996-1997. El periodo de tiempo de análisis es 2000-2001; muestra el principio de recuperación. Los métodos estadísticos utilizados para probar las hipótesis son «*T-test*» y el modelo de regresión multivariante.

Los resultados empíricos proporcionan el apoyo para una relación positiva entre accionistas externos y apalancamiento, una relación curvilínea entre el nivel de propiedad de directivos corporativos y el apalancamiento y finalmente, los resultados muestran que la relación entre la propiedad del accionista externo y el apalancamiento varía a través del nivel de propiedad de directivos corporativos. Estos resultados son compatibles con «la hipótesis de supervisión activa», «la convergencia-de-intereses» y las hipótesis «de atrincheramiento» y con los que han sido propuesto en un contexto diferente. Mientras tanto, la prueba de causalidad inversa entre la estructura de propiedad, la estructura de capital, y el desempeño de empresa indica algún argumento, como la hipótesis de riesgo eficacia y el «*incentive signaling approach*» (la relación entre la estructura de capital y el desempeño de empresa), y el argumento «*profit-debt-ownership*» en la relación entre la estructura de propiedad y el desempeño de empresa.

Palabra clave: el coste de agencia, estructura de propiedad, apalancamiento, desempeño de empresa

RESULTS SUMMARY

Generally, the multivariate regression results support the prior researches. As the thesis has predicted it before, the external block ownership affects companies' capital structure in East Asia countries after the crisis. Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus, and it is statistically significant.

In the effect of managerial share ownership on financing decision, the result has the same direction of influence with some previous studies, that is, when the level of managerial share ownership is low, an increase in managerial share ownership has the effect of aligning management and shareholders' interests. Consequently, as managerial share ownership increases from a low level, managers have less incentive to reduce the debt level, resulting in a higher level of debt (but at a decreasing rate).

In the relationship between external block ownership and leverage at different levels of managerial share ownership, the thesis indicates that the relationship between external block ownership and leverage is different at high and low levels of managerial share ownership. Specifically, the slope coefficient for the relationship between external block ownership and leverage at high levels of managerial share ownership is approximately zero. It is argued that the negative entrenchment effect arising from high levels of managerial share ownership is offset by the positive monitoring effect of external block holders.

In the relationship between leverage (as endogenous variable) and firm performance and the probability of its non-monotonic relationship under the framework of agency theory, this thesis find that the East Asian companies after the crisis apply the efficiency-risk hypothesis. It indicates that higher profit efficiency has generated a higher expected return for those companies in a given capital structure, and the higher efficiency has substituted to some degree for equity capital in protecting the firm against future crises.

Meanwhile, a positively and significantly relation between leverage and Tobin's Q, which performance measure is endogenous variable, is consistent with the incentive signaling approach, which debt can be used to signal the fact that firm has prospect and equity issues may be interpreted as a negative signal. It also indicates that a firm with better prospects can issue more debt than one with lower prospects, because the issue of debt by the latter will result in a higher probability of bankruptcy because of debt-servicing costs, which is a costly outcome to management.

Finally, in the relationship between ownership concentration and firm performance, a positively and significantly relation between EBO and Tobin's Q can be interpreted that the

East Asian companies large owners are more capable of monitoring and controlling the management, thereby contributing to corporate performance. It indicates that ownership concentration has been able to increase the cost-efficiency of monitoring in the post-crisis period and due to this higher incentive has enhanced its usage.

Regarding to the reverse causality, a positively and significantly influence of Tobin's Q on EBO can be interpreted that the East Asian companies large owners are better informed than minority shareholders or potential investors, therefore, they use their knowledge about the firm's prospects to maximize his wealth. This finding is also consistent with the profit-debt-ownership argument.

Meanwhile, in measuring the influence of firm performance on insider ownership, the regression model shown statistically insignificant results, even though the model has a significant F-value that indicates a valid model. What becomes an interesting result is the sign of performance's coefficient is consistent with some previous studies, which showed the relationship between executive compensation and performance is contingent upon the firm's strategic context and those studies supported the idea that corporate value affected ownership structure.

RESUMEN DE RESULTADO

Generalmente, los resultados de regresión multivariante apoyan las investigaciones previas. Como la tesis ha predicho, la propiedad del accionista externo como grupo afecta a la estructura de capital de las empresas en países de sudeste asiáticos después de la crisis. Las empresas con un nivel más alto de propiedad del accionista externo probablemente van a tener una proporción más alta de deudas, ceteris paribus, y esto es estadísticamente significativo.

El efecto del accionariado de directivos corporativos en la decisión de financiación, tiene la misma dirección de influencia con algunos estudios anteriores, es decir, cuando el nivel del accionariado de los directivos es bajo, un aumento en dicho nivel tiene el efecto de alinear los intereses de los accionistas y la dirección. Por consiguiente, como aumentos del accionariado de directivos de un nivel bajo, los directores tienen menos incentivos para reducir el nivel de deudas, terminando en un nivel más alto de deuda (pero a una tasa que disminuye).

En la relación entre la propiedad del accionista externo como grupo y el apalancamiento en los niveles diferentes de los directivos en el accionariado, la tesis indica que la relación entre la propiedad del accionista externo y el apalancamiento es diferente en los niveles altos y bajos en el cuyo de los directivos accionariados. Expresamente, el coeficiente de regresión para la relación entre la propiedad del accionista externo como grupo y el apalancamiento en los niveles altos de directivos en el accionariado es aproximadamente cero. Esto se argumenta que el efecto de atrincheramiento negativo que proviene de los niveles altos de los directivos en el accionariado es compensado por el efecto de supervisión positivo de accionistas externos.

En la relación entre el apalancamiento (como la variable endógena) y el desempeño de empresa y la probabilidad de su relación no es monótona bajo la teoría de agencia. Esta tesis encuentra que las empresas del sudeste asiático después de la crisis aplican la hipótesis de riesgo-eficacia. Esto indica que la eficacia del beneficio ha generado un retorno esperado más alto para aquellas empresas en una cierta estructura de capital, y la eficacia más alta ha sustituido en algún grado al capital en la protección de la empresa contra crisis futuras.

Mientras tanto, una relación positiva y significativa entre el apalancamiento y la Q de Tobin, que mide el desempeño es la variable endógena, es compatible con el «*incentive signaling approach*», el que la deuda puede ser usada como señal de que la empresa tiene la perspectiva y la emisión de acciones pueden ser interpretadas como una señal negativa. Esto también indica que una empresa con mejores perspectivas puede emitir más deuda que la

con perspectivas inferiores, porque la emisión de deuda por el éste terminará en una probabilidad más alta de bancarrota debido a gastos de deuda, que es un resultado costoso por la dirección.

Finalmente, la relación entre la concentración de propiedad y el desempeño de empresa, una relación positiva y significativa entre EBO y la Q de Tobin puede ser interpretada que las empresas del sudeste asiático con mayor grado de accionista externo son más capaces de supervisar el control de la dirección, y a la contribución a al desempeño corporativo. Esto indica que la concentración de propiedad ha sido capaz de aumentar la eficacia del coste de supervisión en el período post-crisis y debido a este incentivo más alto se realza más su utilización.

En cuanto a la causalidad inversa, una influencia positivamente y significante de la Q de Tobin sobre EBO (los accionista externos como grupo) puede ser interpretada como que las empresas del sudeste asiático con mayor grado de accionistas externos están mejor informados que los accionistas de minoría o inversionistas potenciales, por lo tanto, ellos usan su conocimiento sobre las perspectivas de la empresa para maximizar su riqueza. Este encuentro es también compatible con el argumento «*profit-debt-ownership*».

Mientras tanto, en la medición de la influencia de desempeño de empresa sobre los directivos en el accionariado, el modelo de regresión demuestra resultados estadísticamente insignificantes, aun cuando el modelo tenga un valor de F significativo que indica un modelo válido. Un resultado interesante es el signo del coeficiente del desempeño que es compatible con algunos estudios anteriores, que mostraron la relación entre la compensación de los directivos y el desempeño que es contingente sobre el contexto estratégico de la empresa y aquellos estudios apoyaron la idea el que el valor corporativo afecta la estructura de propiedad.

CHAPTER 1

INTRODUCTION

1.1 PROBLEM BACKGROUND

The Asian economic crisis has exposed critical deficiencies in financial systems throughout Asia and has also highlighted the problem of corporate governance among South East Asian corporations. The principal focus of post-crisis research has attempted to link these deficiencies to specific causes such as over-leveraged domestic financial markets, overexposure to foreign exchange risks and monopolistic market structures. Underlying all these issues is a fundamental lack of control. Poor corporate governance is indicative of this problem. Indeed, 'corporate governance provides at least as convincing an explanation ... as any or all of the usual macroeconomic arguments'.[1]

Corporate governance developed as a way of ensuring that investors receive a return on their investment by protecting against management expropriation or use of the investment capital to finance poor projects. Specifically, corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment [Shleifer/Vishy 1997: 737]. However, the inability to create perfect contracts, as Hart [1995] suggests, necessitates the need for corporate governance. That is, corporate governance issues arise wherever contracts are incomplete and agency problems exist.

Corporate governance can best be interpreted as the set of mechanism – both institutional and market based – that induce self-interested managers (controllers of the firm) to make decision that maximize the value of the firm to its shareholders (owners of the firm).[2] The aim of these mechanisms, of course, is to reduce the agency costs that arise from the principle-agent problem; and they could be internal and/or external in nature.[3] Internal mechanisms deal with the composition of the board of directors, such as the proportion of independent outsiders in its membership and the distinction between the CEO and the chairperson. Another important internal mechanism is ownership structure, or the degree at which ownership by managers

[1] See Wong [2000]

[2] One could also add, "to promote society's interest and economic growth in the process". See Dennis /McConnell [2003].

[3] For more on these mechanisms and the evidence relating to the agency problem, see Dennis/McConnell [2003].

obviates the trade-off between alignment and entrenchment effect.[4] External mechanisms, on the other hand, rely on the takeover market in addition to the legal/ regulatory system, whereby the takeover market acts as a threat to existing controllers in that it enables outsiders to seek control of the firm if bad corporate governance results in a significant gap between the potential and the actual value of the firm.

Related to this issue, the recent study commissioned by the Asian Development Bank [2000b] reports that ownership structure determines the governance problem. It explains that the two key features of corporate ownership structure are concentration and composition. First, Asian firms are perceived to be highly concentrated, family-dominated corporations.[5] It is possible to determine the nature of the agency problem by the degree of dispersion between management and ownership. High dispersion (low concentration) occurs when the majority of ownership is held by a large number of individual, minority shareholders. The problem then is that between management and minority shareholders. Low dispersion (high concentration) is the condition of the majority of ownership is controlled by a small number of large shareholders. The problem then is between majority and minority shareholders.

From Table 1.1 it is clear that the primary crisis economies all have concentrated ownership. On average, the five largest shareholders, combined, own 55% of each firm in crisis economies. Indonesia, with 67%, is the largest and Korea, with 38%, the lowest concentration. Thus, with low ownership dispersion the agency problem arises between majority and minority shareholders.

The second part of ownership structure is its composition. Ownership composition essentially means who owns the corporation—who the shareholders are. Examples of shareholders include individuals, a family or family group, a holding company, a bank, an institutional investor or a non-financial corporation [ADB 2000b: 7]. Importantly for governance, it must be determined if any owners form a controlling group(s). Table 1.1 also provides information on the composition of Asian corporations. From it, we can see that Asia consists primarily of family-based ownership. There is a tentative link between composition and concentration. That is, it may be credible to assume that ownership composition is a result of ownership concentration because corporations are often established by founding families.

[4] Equity ownership by insiders can align insiders' interests with those of other shareholders, thereby leading to greater firm value. However, higher ownership by insiders may result in a greater degree of managerial control, potentially entrenching managers. Wan [1999] finds that management ownership does in fact exhibit an inverted U-shaped relation with Tobin's *Q*-ratio.

[5] See Claessens et al. [1999, 2000]

Table 1.1

Ownership Concentration in Asia

	Korea	*Indonesia*	*Malaysia*	*Philippines*	*Thailand*
Number of public corporations (1998)	345	178	238	120	167
Percentage of corporations under family control*	24	67	42	46	51
Average ownership (%) of the five largest shareholders per firm†	38	67	58	60	56
Ownership (%) of the ten largest firms (market capitalisation)‡	23	53	46	56	44

* ADB 2000b: 26

† ADB 2000b: 22

‡ Nam *et al.* 1999: 13

In researching data on ownership concentration in Asia, it became apparent that no two studies could provide the same results. This is (as Nam *et al.* [1999] also note) because of the difficulty in definitively determining ownership structures from the information available. Thus, the figures provided are approximate, taking into account all studies cited. Furthermore, the table represents only publicly listed corporations. It is fair to assume that the concentrated ownership figures presented here would increase dramatically if privately held firms were included in the data set.

Source: Lu, Justin and Jonathan Batten, "The implementation of OECD Corporate Governance Principles in Post-Crisis Asia," JCC 4 Winter [2001], p. 54.

On the other side, the Asian Crisis itself has supported previous theoretical and applied literature that has highlighted the complex nature of the relationship between ownership structure, capital structure, and firm performance. Existing literature highlights the agency problems between managers and shareholders. In an attempt to ensure the continued viability of the firm, the latter may result in a generally lower leverage ratio below the optimum level.

For example, Jensen/Meckling [1976] argue that introduction of managerial share ownership may align the interests of managers and shareholders and thus reduce these agency problems. Extending this idea, Brailsford et al. [2002] suggest that the relationship between managerial share ownership and leverage may in fact be non-linear. Stulz [1988] formalized a concave relationship between managerial ownership and firm valuation too; with increase in managerial ownership and control, the negative effect on firm value associated with entrenchment starts to exceed the incentive benefits of managerial ownership. Empirically, Shleifer/Vishny [1986]

suggest that concentration of ownership may improve firm performance while Morck et al. [1988] argue that it may even deteriorate firm performance.

Another problematic issue of most studies in this theme is the origin of their data, which are mainly the USA and the UK. The ownership structure in these two countries differs drastically from those in continental Europe or Asia. Apart from a generally low applicability of the results to other countries, both the US and the UK data have two further shortcomings. First, since both countries show the lowest ownership concentration worldwide, they provide little data of highly concentrated companies. Consequently, those studies yield good results for low concentrated firms, but fail in significance for higher concentration, since they cannot provide a large enough sample of those firms. Second, with the evolution of stock markets, shareholdings become increasingly complex through multiple control chains, pyramiding, and crossholdings. These complex ownership structures have a strong impact on the separation of ownership and control and the resulting agency conflicts. While these structures are prominent for most countries, they are little found in the USA and the UK.

Meanwhile, recent studies about ownership, capital structure, and firm performance that are done in East Asia countries mainly focus on the period pre-crisis. There are such as Claessens et al. [2000] examine the pattern of ownership in seven East Asian countries, Claessens et al. [2002] investigate the effect of large shareholding on firm valuation, and Lemmon/Lins [2003] further link ownership structure to stock returns in these countries. None of these recent studies however considers the effect of ownership structure on capital structure and firm performance and the possible interaction between capital structure and firm performance. In other words, a clear understanding of the effects of ownership structure on capital structure and firm performance remains much unexplored, especially an analysis of the post-crisis period.

This condition, of course, triggers a curiosity about the effect of Asian Financial Crisis to the company performance, especially how the Asian corporations react to it, in term of improving their corporate governance practices. Research that concerned about ownership structure, capital structure and firm performance of East Asian countries, which are affected by the crisis, is one of research efforts in topic “corporate governance", in term of post-crisis analysis. This research constituted former investigations in topic corporate governance, which many result of empiric researches show immeasurable finding how a certain event (e.g. crisis, economic recession, or shock) is able to make a decisive change.

By employing the rationale underlying the agency theory framework, theoretical and empirical studies have suggested that managers, who have non-diversifiable human capital invested in the firm, have incentives to reduce their non-diversifiable employment risks by ensuring the continued viability of the firm [Amihud/Lev 1981]. One method of reducing the non-diversifiable employment risk is by decreasing the firm's debt holdings [Friend/Lang 1988].

Recent developments in agency theory also suggest that the structure of corporate ownership can affect firm performance by mitigating agency conflicts between management and shareholders [Putterman 1993]. These recent researches find that firms differ in terms of the degree to which ownership is concentrated among corporate insiders and external investors. Moreover, the distribution of ownership among different groups can influence managerial opportunism, which subsequently has implications for managerial behavior and corporate performance.

As it has been hypothesized by Jensen/Meckling [1976], Shleifer/Vishny [1986], Stein [1989], and James [1998], concentrated ownership – whether by insider or outsider investors – lead to better performance, worse performance, or to have no observable effect on performance.[6] Increased ownership by insiders or the presence of a large block holder can lead to better performance due to three main reasons. First, Jensen/Meckling [1976] argue that greater equity ownership by insiders improves corporate performance because it better aligns the monetary incentives of the manager with other shareholders, since the principal-agent conflict disappears when the manager is also the majority shareholder. Second, Shleifer/Vishny [1986] argue that even when controlling block holders are not involved in management, they are, nonetheless, more capable of monitoring and controlling managers, thereby contributing to better corporate performance.[7] Third, Stein [1989] and James [1998] argue that family-owned firms may make better investment decisions, since families are less myopic and have longer investment horizons, with less emphasis on short-term results. The longevity of the family owner's interaction with the firm also implies a higher degree of firm knowledge, better decision making, and less shirking, thus leading to better performance.

Concentrated ownership by insiders or an outsider can have a negative effect on firm performance due to four principal reasons. First, while high levels of control increase the alignment of interests between controlling and minority shareholders, Stulz [1988] and

[6] There are over 100 studies of firm performance and ownership. Mathiesen [2002] provides a comprehensive review of the literature prior to 2002.

[7] Burkart, Panunzi and Shleifer [2003] predict that this effect will be even more important in countries with lower investor protection where the private benefits of control are greater.

Barclay/Holderness [1989] argue that low and intermediate levels of control reduce the probability of a takeover and entrench poor managers. Second, managers or controlling shareholders may pursue actions that maximize their personal utility but lead to suboptimal policies for the firm, such as the consumption of perquisites [Shleifer/Vishny 1986; Morck, Shleifer/Vishny 1988; Anderson/Reeb 2003; Morck, Wolfenzon and Yeung 2005]. For example, family-owners who manage a firm may pay themselves excessive compensation, or the family may appoint its members to positions in management over better-qualified external candidates. Third, due to the concentration of family wealth in the business and the concern for the family legacy, Morck, Wolfenzon and Yeung [2005] argue that family-owned firms may display excessive risk-aversion and forego profitable expansion strategies or mergers. And lastly, the use of control-enhancing mechanisms to separate control rights from cash-flow rights weakens the alignment between controlling and minority shareholders and increases the incentives for controlling shareholders to extract private benefits [DeAngelo/DeAngelo 1985; Johnson et al. 2000].

Finally, concentrated ownership may have no observable effect on firm performance due to endogeneity. Demsetz [1983], Demsetz/Lehn [1985] and Kole/Lehn [1997] argue that ownership and firm performance are endogenous and should vary systematically by firm and by industry in ways that are consistent with value maximization. Efficient markets will lead to the best firm-specific ownership structure, as firms with inefficient ownership structures will fail to survive in the long run. As a result, there should be no statistical relationship between ownership and firm performance, as the observed ownership structure will balance the marginal advantages and disadvantages to the firm's shareholders. Table 1.2 summarizes the mixed results from the voluminous empirical literature on ownership and firm performance.

Early studies beginning with Morck, Shleifer and Vishny [1988] document a non-monotonic (hump-shaped) relationship between ownership and Tobin's q ratios that reflects the relative importance of alignment and entrenchment effects. They find that valuations increase until ownership reaches 5%, then declines until 25%, before increasing again with larger ownership stakes. Others find document similar patterns with different break points. The interpretation is that either low or high levels of ownership increase alignment and are associated with increasing Tobin's q ratios, while intermediate levels of ownership increase entrenchment and the private benefits of control, and are associated with declining Tobin's q ratios.[8] Most studies find no relationship when using accounting measures of performance. Other studies beginning with Demsetz/Lehn [1985] find no statistically significant relationship between ownership and firm

[8] This pattern is referred to the trade-off between the alignment and the entrenchment effects [Claessens et al. 2002]

performance, consistent with the view that they are endogenous. Himmelberg, Hubbard and Palia [1999] partly explain these inconsistent results by suggesting that many studies failed to address potential reverse-causality between ownership and performance, leading to biased results due to unobserved firm heterogeneity.

Table 1.2

Summary of Empirical Literature (Ownership and Performance)

The table summarizes the empirical literature on ownership, firm performance, and financial leverage. The studies are representative. Mathiesen [2002] provides a comprehensive review of the literature prior to 2002.

Relationship	Positive Relationship	Negative Relationship	No Relationship
Concentrated ownership and performance	Morck, Shleifer and Vishny [1988], Chen, Hexter and Hu [1990], McConnell and Servaes [1990], Hermalin and Weisbach [1988], Kole [1995] and Holderness, Krozsner, and Sheehan [1999][1]		Demsetz and Lehn [1985], Holderness and Sheehan [1988], Loderer and Martin [1997], Himmelberg, Hubbard and Palia [1999], Demsetz and Villalonga [2001]
Family ownership and performance	Anderson and Reeb [2003a], Adams, Almeida and Ferreira [2005], Villalonga and Amit [2006], Barontini and Caprio [2006][2], Barontini and Caprio [2006][3]	Morck, Stangeland and Yeung [2000], Villalonga and Amit [2006], PerezGonzales [2006][3]	
Control-enhancing mechanisms and performance		Claessens et al. [2002], Lins [2003], Lemmon and Lins [2003], Cronqvist and Nilsson [2003], Villalonga and Amit [2006], Barontini and Carprio [2006], Gompers, Ishii and Metrick [2007]	
Concentrated ownership and financial leverage	Kim and Sorenson [1986], Agrawal and Mandelker [1987], Mehran [1992], Litov [2005]	Holderness and Sheehan [1988], Friend and Lang [1988], Agrawal and Nagarajan [1990], Jensen, Solberg and Zorn [1992], Berger, Ofek, and Yermack [1997], Moh'd, Perry and Rimbey [1998]	Holderness, Krozner, and Sheehan [1999], Anderson and Reeb [2003b]
Control-enhancing mechanisms and financial leverage	Litov [2005], Bianco and Nicodano [2006]	Berger, Ofek, and Yermack [1997]	

Note: 1. Non-monotonic relationship
2. Firms run by founder
3. Firms run by heirs

Source: King, Michael R. and Eric Santor. "Family Values: Ownership Structure, Performance and Capital Structure of Canadians Firms" Working Paper, Bank of Canada [2007 - 40], p. 30.

The concept that the general characteristics of a firm's ownership structure can affect performance has received considerable attention but few studies have looked at the relationship between ownership structure and capital structure. Modern empirical contributions on ownership structure and performance include Morck et al. [1988], McConnell/Servaes [1990], Hermalen/Weisbach [1991], McConnell/Servaes [1995], Himmelberg et al. [1999] and Cho [1999]. This is despite good reasons to believe that there may be interrelations between the structures of ownership and capital. Specifically, the managerial approach to capital structure and the managerial self-interests hypothesis suggest that corporate financing decisions are influenced by managers' adverse incentives and the incentive for managers to act opportunistically can be

influenced by the structure of equity ownership [Demsetz 1983, Shleifer/Vishny 1986, Agrawal/Mandelker 1990, and Prowse 1994]. Consequently, the distribution of equity ownership may be related to capital structure.

On the other side, the topic of optimal capital structure in influencing the firm performance has been the subject of many studies. It has been argued that profitable firms were less likely to depend on debt in their capital structure than less profitable ones. It has also been argued that firms with a high growth rate have a high debt to equity ratio. Firms are willing to maximize their performance, and minimize their financing cost, by maintaining the appropriate capital structure or the optimal capital structure.[9] In practice, firm managers who are able to identify the optimal capital structure are rewarded by minimizing the firm's cost of finance thereby maximizing the firm's revenue. If a firm's capital structure influences a firm's performance, then it is reasonable to expect that the firm's capital structure would affect the firm's health and its likelihood of default. In short, the issue regarding the capital structure and firm performance are important for both academics and practitioners.

1.2 PROBLEM DISCUSSION, PURPOSE AND DELIMITATION

Earlier research indicates, relative to the United States and many other well-developed economies [La Porta et al. 1999, Claessens et al. 2000, and Lins 2003], that the widespread use of pyramidal ownership structures and cross-holdings in East Asia allows insiders to exercise effective control over a company, despite owning relatively few of its cash flow rights. Moreover, La Porta et al [1998] argue that the absence of strong legal protections and other external governance mechanisms (such as takeovers) in many emerging economies further increases the severity of agency problems between controlling insiders and outside investors.

The ADB [2000b: 6] finds that, in 'East Asian countries... where corporate ownership is concentrated, corporate management is usually in the hands of controlling shareholders'. Indeed, Dyck [2000: 29] comments, in the case of family controlling shareholders, 'the distinction between owners and managers is eliminated in most cases'. Using the Claessens et al. sample for East Asia, Dyck [2000] calculates that family controlling shareholders directly participate in management 67% of the time. Given this link, protecting minority shareholders from the abuse of controlling shareholders becomes the fundamental problem.

[9] See Kraus/Litzenberger [1973], Harris/Raviv [1991]

In fact, regardless of the type of ownership structure, there will always be the fundamental risk of large shareholders redistributing wealth for self-interest that is not necessarily congruent with other stakeholders. However, given the fact that many Asian corporations are family-based, the investors in this case are particularly susceptible to abuse. The existence of family-dominated corporations presents substantial impediments to increased minority rights. The ability to participate is a function of shareholder rights, protection of those rights and exercising the rights. The OECD Principles suggest increasing this ability.

Essentially, when granting shareholder rights, the control already held by existing parties becomes a problem, especially when we consider the number of shares held by the respective parties. In the context of family ownership concentration, that means, by its nature, these shareholders will hold a majority of shares. Therefore, increasing minority rights will have little effect, as family members will still hold control. From Table 1.1 we see that on average the degree of family ownership concentration in the Asian crisis economies exceeds 55%.

However, the Asian Crisis has brought some fundamental changes in Asian corporation's governance practice. Many of them happened as consequences of economic recovery agreements between the governments of most affected countries with the IMF (International Monetary Fund). Some points of those agreements are about the restructuring of ownership portion of family-dominated companies, which are in financial difficulty and become one of the sources of crisis, by selling it to outside investors in order to be more transparent and effective governance with the final objective is to improve the firm performance.

The thesis's main problem will be to investigate whether the structure of equity ownership can help explain cross-sectional variation in capital structure and performance. Since corporate managers and external block holders are two groups of shareholders who have an influence on decisions concerning the allocation of the firm's resources, the study focuses on the effects of managerial share ownership and external block ownership on managerial incentives and consequently on the leverage ratio and Tobin's Q. Moreover, despite the widespread interest in the way firms make their financing decisions, most of the capital structure research has been conducted in the United States. There is limited evidence outside the United States, especially in emerging markets, such as in East Asia region. In addition, empirical research on this area, to my knowledge, has not been tested to any greater extent with special focus of post-crisis analysis.

This thesis is then distinctive in a number of ways. The theoretical basis of the link between ownership structure, capital structure and firm performance is primarily derived from Brailsford et

al. [2002] and Gross [2007], that allows for both managerial ownership and external block holder problems in firm financing. This framework hypothesizes that managerial ownership and external block holder, both determined exogenously, will influence capital structure and firm performance. In the light of the specific sample characteristics, this thesis, however, empirically extends Brailsford et al. [2002] and Gross [2007] in a number of ways. Firstly, this thesis allows for the simultaneity between capital structure and firm performance, often ignored in the literature, but recently highlighted by Berger/di Patti [2003]. Ignoring this important simultaneity could however bias the effects of ownership on capital structure and firm performance. Indeed, there is evidence that effects of ownership cannot be separated from its effect on leverage. Finally, as Stulz [1988] and Brailsford et al. [2002] suggest that there could be important non-linearity in the effects of ownership on capital structure and firm performance, which is not accounted for by some previous investigations. In view of initial non-parametric analyses of the samples, this thesis however allows for nonlinearities in the relationships between ownership concentration, insider ownership (managerial ownership), capital structure, and firm performance. This is a crucial aspect of the thesis's analysis, especially when one considers the potential importance of majority shareholdings, and the potential threshold effects of different levels of concentration (51% for example) on capital structure and firm performance.

The **purpose** of this thesis is to analyze the effect of Asian Financial Crisis on corporate ownership structure, capital structure, and firm performance of the corporations in the most affected countries. It also analyzes how they react to the crisis in term of corporate governance.

I will **limit** the study to the external block ownership model, managerial share ownership model, and the effect of incorporated those model on the corporate financing decision and firm performance within Indonesia, Malaysia, Thailand, Korea, Philippines, Hong Kong, and Taiwan mainly because of the fact that those are the most affected countries in East Asian region. The study will not include any studies done on ownership structure and firm performance outside East Asia region. This thesis is limited to comprise study done on ownership structure and firm performance within East Asia region between the years 2000 - 2001. The reason for choosing this time-horizon will be explained in chapter five.

1.3 ECONOMIC RELEVANCE, ANALYTICAL APPROACH AND AGENDA

The impact of ownership structure on company economic performance is one of the most studied areas in finance that has varied results and arguments. For example, McConnell/Servaes [1990] find a positive effect of ownership concentration on market-to-book value of equity and

profitability, by controlling for industry, capital structure and nation effects. Furthermore, they propose and support the hypothesis that the identity of large owners - family, bank, institutional investor, government, and other companies - has important implications for corporate strategy and performance. The effect of ownership concentration is also found to depend on owner identity.

On the other hand, studies by Coase [1988] or Demsetz/Lehn [1985] argue that the relation between ownership concentration and corporate performance is spurious. In addition, Leech/Leahy [1999] found out that control-type effects have no clear effect on a firm's performance. Smith, Cin, and Vodopivec [1997] examine the relation between employee or foreign ownership and firm performance. They find that a percentage point increase in foreign ownership is associated with about a 3.9 percent increase in value-added and for employee ownership with about a 1.4 percent increase. Claessens/Djankov [1999] find that the more concentrated the ownership, the higher the firm's profitability and labor productivity. Estrin/Rosevear [1999] explore whether specific ownership forms have led to different performances among firms in Ukraine. They refute the hypothesis that private ownership per se is associated with improved performance. As a performance proxy, they use profit, sales, and employment.

From the perspective above, the effect of ownership structure plays important role in improving firm performance. It is based on the fact that the corporation is surely the most important form of firm organization. Since corporate ownership is transferable over time and shareholders have limited liability for company debts, the corporation is superior in business creation and functioning. However, the corporation has its own problem related to the separation of ownership and control. It is namely the principal-agent problem.

Corporate governance deals with the ways in which this problem is solved, i.e. how managers (agents) can ensure suppliers of finance to corporations (principals) from appropriation. Actually, the subject of corporate governance has great practical importance. Series of well-known company failures – Maxwell Group, Bank of Credit and Commerce International, Barings Bank etc. – are clear manifestation of such importance. A great number of studies refer to corporate governance in developed economies but relatively small literature – to emerging and transition economies. Asian crisis 1997 demonstrated to all that rotten corporations can lead to severe economic disasters not only at national but also at worldwide level. Regarding to the relation between ownership structure, corporate governance, and firm performance, it also triggers an interesting question about how much the optimum portion of each party in controlling and

owning the company is. In this thesis, the question is directed to the most affected countries during post-crisis period. It is the **economic relevance** of this thesis.

The **analytical approach** of this thesis is relatively traditional. First, the theoretical literature of ownership structure, capital structure, and its effect on firm performance are reviewed in order to identify the main hypotheses that may govern the relation between ownership structure and the company performance. After that, the associated empirical literature is reviewed to clarify what is known about the phenomenon and to discuss some differences of the previous researches that characterize the study of ownership structure and its effect on company value. Finally, the thesis makes its own empirical analyses. In particular, this thesis tests a multivariate regression model of the relations between ownership structure and firm performance on a cross-sectional sample of 532 companies in seven East Asian countries during the 2000 - 2001 observation periods. In this connection, it should be stressed that the proposed statistical model obviously can be no more that a simplistic attempt to model a piece of market behavior because reality is simply too complex to model completely.

The **agenda of the thesis** is as follows. In Chapter 1 (this chapter), the big picture is outlined. It is shown that the study of the relation between ownership structure, capital structure, and the firm performance is merely one of many possible tools in determining and analyzing the effect of Asian Crisis with regard to corporate governance. Then, in Chapter 2, the basic aspects of ownership structure, capital structure and firm performance are reviewed to identify the basis for variable selection. Chapter 3, the main theories of ownership structure and capital structure are reviewed to identify the possible hypotheses of the problem. In Chapter 4, the main literatures of capital structure and firm performance are investigated to classify the potential hypotheses of the problem. Then, in Chapter 5, the main theories of ownership structure and firm performance are examined to identify the possible hypotheses of the problem. Chapter 6 provides the research methodology that develops the research design, sample and data collecting, and the effect of ownership structure and capital structure on the company performance. Chapter 7 is devoted to testing the model and analyzing the empirical research and Chapter 8 concludes the thesis.

CHAPTER 2

OWNERSHIP STRUCTURES, CAPITAL STRUCTURE, AND FIRM PERFOMANCE: BASIC ASPECTS, THEORETICAL BACKGROUND, AND EMPIRICAL EVIDENCE

2.1 INTRODUCTION

The research on ownership structure and financial performance has attracted much academic interest for a long period of time. Adam Smith raised the question as early as 1776 where he argued that separation of ownership and control in large joint-stock corporations created poor incentives for professional managers to operate the firms effectively and create the maximum wealth to the shareholder. However, because this classic incentive alignment argument has got so much attention, most outsiders to the research on ownership and performance think that it is the only argument around. After all, if the incentive argument were the only important argument, it is puzzling that corporations with dispersed ownership are so widespread in modern economies. Indeed, from 1776 until the present time the joint-stock corporation with dispersed ownership has become much more common and important for overall economic activity. This development contradicts the implied prediction of the incentive alignment argument, namely, that such companies should be less efficient and therefore less able to survive in the long run. In other words, there are good reasons to believe that there is more to the story about ownership and performance than the alignment of managerial incentives.

The objective of this chapter is first and foremost to take a closer look on the concept and the different aspects of ownership structure, capital structure and firm performance. This is implemented by an elaboration on the different measures and their development in literature. This chapter will make clear that ownership is not summarizable in one single or a few variables, but that it constitutes rather a large spectrum of measures due to its different aspects and dimensions. Therefore, ownership variables can always mirror only a part of the real ownership structure, which makes the variable selection an important issue in the ownership, leverage, and performance literature. Then the literature is organized around varying forms of performance measures. They can be distinguished by the applied data type, market based, accounting based and hybrid based. Each type raises different problems. The remainder of the chapter will also

demonstrate some factors that relate to capital structure and the agency problem. These literatures are discussed one by one and concluding remarks follow.

2.2 THE CONCEPT OF OWNERSHIP STRUCTURE

The economic literature offers several explanations and predictions regarding the relationship between ownership structure and financial performance. The ownership structure concept essentially covers two dimensions, namely, that of ownership concentration and that of ownership type [Short 1994: 218].

The ownership concentration renders quantitative information on ownership, representing a share size or the sum of shares or a concentration index, e.g., Herfindahl coefficient. In other words, the ownership structure of the corporate sector is situated in a continuum. At one end of the spectrum, there are companies in which ownership is dispersed among small shareholders, while control is concentrated in the hands of managers [Berle/Means 1932]. The dispersed shareholding is observed in countries with "common law" legal system – USA, UK [La Porta et al. 1999]. There, the Anglo-Saxon corporate governance system relies on sophisticated legal protection of investors from appropriation by managers. Generally, voting on important internal (election of the board of directors) and external (mergers and liquidations) corporate matters is the main means of control [Easterbrook/Fischel 1983]. Hence, the enforcement of voting rights is the key issue of the Anglo-Saxon corporate governance system.

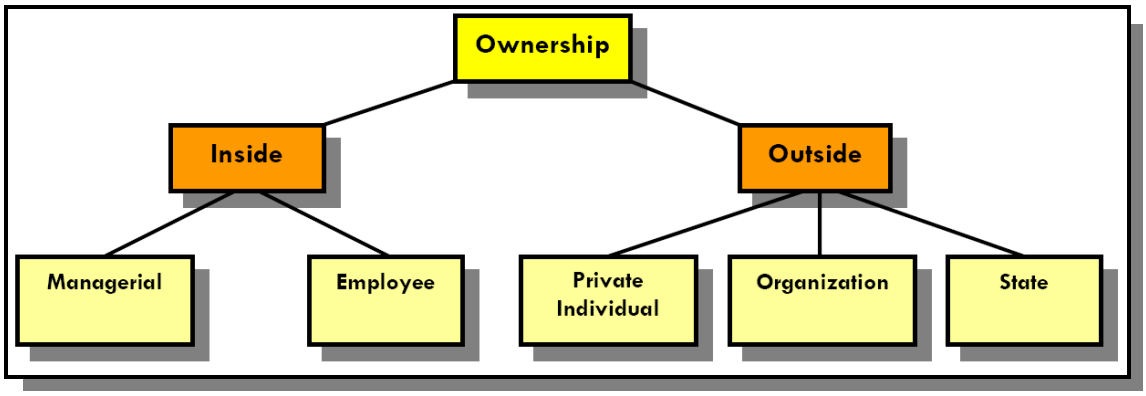
At the other end of the spectrum, there are companies with concentrated ownership of large investors [Shleifer/Vishny 1986]. In such companies, managers act at the dictate of the controlling shareholder or debtor. The concentrated ownership is common for countries where it is quite costly for small investors to exercise their control and cash flow rights. Large investors enjoy economies of scale and reduced traditional free rider problem. The Continental Europe and Japan experience corporate governance conducted by large investors [La Porta et al. 1999]. The empirical evidence suggests positive relation between the concentration and corporate performance. Thus, Gorton and Schmid [1996] find for German corporations that block holders improve company performance. In Japanese corporations, large shareholders replace badly performed managers more often than dispersed ones [Kaplan/Minton 1994].

The ownership structure of the corporate sector deals with ownership concentration as well as with different owner types. This second dimension, the owner's identity, is the qualitative

information about the type of shareholder. This information is important since different owner types have different incentives, utility functions and means of control. Generally, according to the largest owner, ownership of a firm can be divided into two main categories – inside and outside (Figure 2.1). The insiders are managers and employees. The outsiders can be separated into individuals, organizations, and state. However, each country has specific features and exhibits some deviations from theoretical classification due to the legislation and the history of establishing of private firms

Figure 2.1

Types of Ownership Structure



Managerial Ownership. Berle/Means [1933] ascertained the effect of managerial ownership on corporation performance as early studies of managerial ownership. They argued that diffusion in ownership renders owners of shares powerless to constraint professional management. What is more, the higher diffusion of ownership is, the less (but in nonlinear relation) incentives for minor shareholders to participate in corporate governance. As a result, managers can seek ways to draw profits from other shareholders.

Employee Ownership. Employee control is not investigated intensively. Nonetheless, it can be suggested that because of relatively high monitoring costs and "free rider" problem, the corporate governance conducted under employee ownership is undermined by managerial opportunistic behavior. Hence, enterprises do not perform at top margin [Hansmann 1996]. However, employee ownership is preferable for companies that for some reasons cannot be privatized, since it is better than being state governed [Earle/Estrin 1996].

Private Individual Ownership. Individual investors are supposed to create strong controlling mechanism since their holding in the corporations is non-diversifiable [Shleifer/Vishny 1986].

Here, individual ownership refers to one with private individuals as dominant shareholders. With higher concentration of individual properties, stakeholders tend to enforce monitoring and, thus, to ameliorate firm performance. However, Demsetz/Lehn [1985] doubt such inference. They assert that the structure of corporate ownership varies systematically in ways that are consistent with value maximization. Among the variables that explain such variations are firm size, instability of profit rate, and regulation factors. Therefore, the deviations from the optimal ownership cause additional costs.

Organization Ownership. Outside control of organizations is affirmed to treat corporations in the most efficient way due to signaling and special abilities of owners. These organizations, either firms (banks, investment funds, industrial groups, concerns, multinationals etc.) or institutions (industrial and financial associations, agencies etc.), can better analyze information, provide new technologies and funds, have special monitoring skills. Organization ownership is typically the most concentrated relatively to others. Therefore, this type of owners need not as much legal protection as individuals need [Shleifer/Vishny 1997].

State ownership. Traditionally, public enterprises are called to cure market failures. As social costs of monopoly power, externalities, or distribution issues become significant, state control seems to be economically more desirable [Atkinson/Stiglitz 1980]. However, empirical evidence suggests that public firms are highly inefficient in comparison to private ones [Boardman/Vining 1989] and privatized ones [Megginson et al. 1994], even in pursuing public interests. There are several reasons of such inconsistency. State-controlled firms are governed *de facto* by the bureaucrats or politicians that have extremely concentrated control rights, but no significant cash flow rights, since generated profits are channeled to government budget. The absence of pecuniary motivation in firm governance is aggravated by political goals of the bureaucrats that are typically different from social welfare [Shleifer/Vishny 1994]. For instance, politicians can form special interest groups that help them in elections. Such enormous inefficiency of state firms has entailed a wave of governance transformation in economies around the world in the last two decades, namely privatization. Generally, privatization is the replacement of public control over firm with private control. The resulting ownership structure of private owners with matched cash flow and control rights provides significant improvements of enterprise performance.

2.2.1 Ownership Structure and its Measure

Apart from these two key ownership dimensions, there are also other aspects that form many shades of measures. One common issue is the general definition of shareholding. Many studies

do not use the direct share, but the cohesive ownership, which includes indirect shareholdings.[1] These shares are not personally hold by the individual, but controlled by him. They could be shares legally belonging to family members or close friends.[2]

Another distinguishing aspect is the level at which the ownership is measured. Early studies only examined the shareholdings on the first level, i.e., only the direct ownership of the shares of the considered company. However, with the evolution of stock markets shareholdings became increasingly complex through multiple control chains, pyramiding, and crossholdings.[3] Figure 2.2 gives examples of the complex ownership structures. Firms form a control chain if Firm A directly controls Firm B, which in turn controls Firm C or a sequence of firms leading to Firm C, each of which has control over the next one. In a multiple control chain, the control over a company is executed via a multitude of parallel control chains.[4] Pyramiding is a sub-form of control chains, where every share in the chain has to present a minimum of control, e.g., 20 or 25%.[5] Crossholding means a company directly or indirectly controls its own stocks, e.g., Firm A holds shares of Firm B owning in turn shares of Firm A. Due to this complex ownership structures, the incorporation of the further levels of ownership and thus the ownership structure of the shareholding companies became important.[6] Due to this complex ownership structures, the incorporation of the further levels of ownership and thus the ownership structure of the shareholding companies became important.[7]

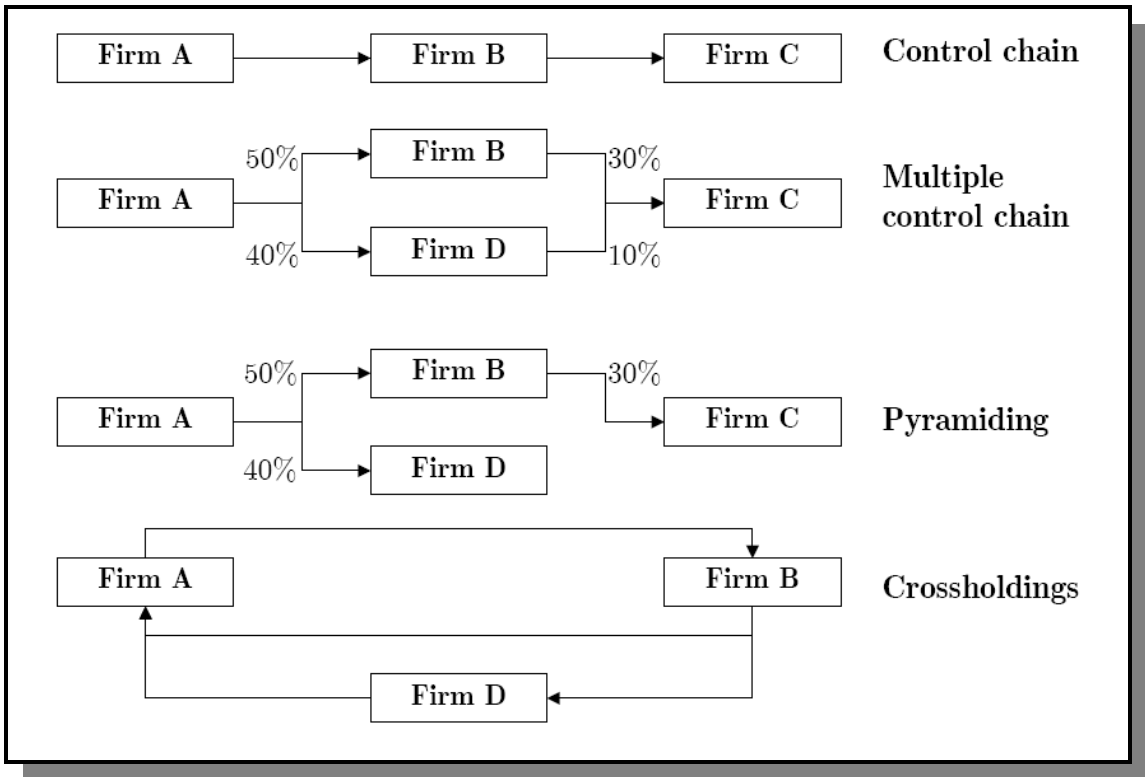
The consideration of complex ownership structures raises the further question of the measured object: control rights or cash flow rights. Control rights measure the degree of control given by a share or control chain, cash flow rights measure the cash flow entitled through the share. Both the size of the rights themselves as well as the degree of their separation matter for share-holders' incentive and behavior.[8] Control rights can be separated from cash flow rights in two ways. First, the company can issue classes of shares that differ in terms of their relative proportion of voting rights and dividend entitlement, e.g., preferred stock or multiple-vote stock.

[1] See Demsetz/Lehn [1985], Kamerschen [1968], Leech/Leahy [1991], McConnell/Servaes [1990], McEachern/Romeo [1978], Mørck et al. [1988], and Palmer [1973b].
[2] See Holderness et al. [1999, p. 438] and Mathiesen [2002, pp. 87-88].
[3] See Claessens et al. [2000, p. 92], Faccio/Lang [2002, p. 366], and La Porta et al. [1999, pp. 23-25].
[4] See Bertrand/Mullainathan [2001, p. 478] and La Porta et al. [1999, pp. 23-25].
[5] See Bertrand/Mullainathan [2001, p. 478], Beyer [1996, p. 84], and Grant/Kirchmaier [2005, p. 66].
[6] See Beyer [1996, pp. 82-83], Claessens et al. [2000, p. 91], Faccio/Lang [2002, p. 366], and La Porta et al. [1999, p. 10].
[7] See Becht [1999, p. 1073], Claessens et al. [2000, p. 91], Faccio/Lang [2002, p. 366], Franks/Mayer [2001, p. 961], and La Porta et al. [1999, pp. 23-25].
[8] See Becht [1999, p. 1073] and Faccio/Lang [2002, pp. 391-393].

Second, even in the absence of violations of the one-share-one-vote rule multiple control chains explain the divergence of control and cash flow rights.[9]

Figure 2.2

Examples of Complex Ownership Structure



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 11.

For the calculation of the size of control and cash flow rights La Porta et al. [1999] developed a now widely accepted standard methodology, which was followed by Claessens et al. [2002, 2000], Faccio/Lang [2002], and Barontini/Caprio [2005]. Cash flow rights equal the product of the share percentages of the control chain, whereas the voting right is represented by the lowest percentage in the control chain. Figure 2.3 gives an example for the calculation of cash flow and control rights.[10]

Edwards/Weichenrieder [1999] use a different definition. They measure the cash flow rights as fraction of total dividends paid and control rights as votes exercised at the last annual

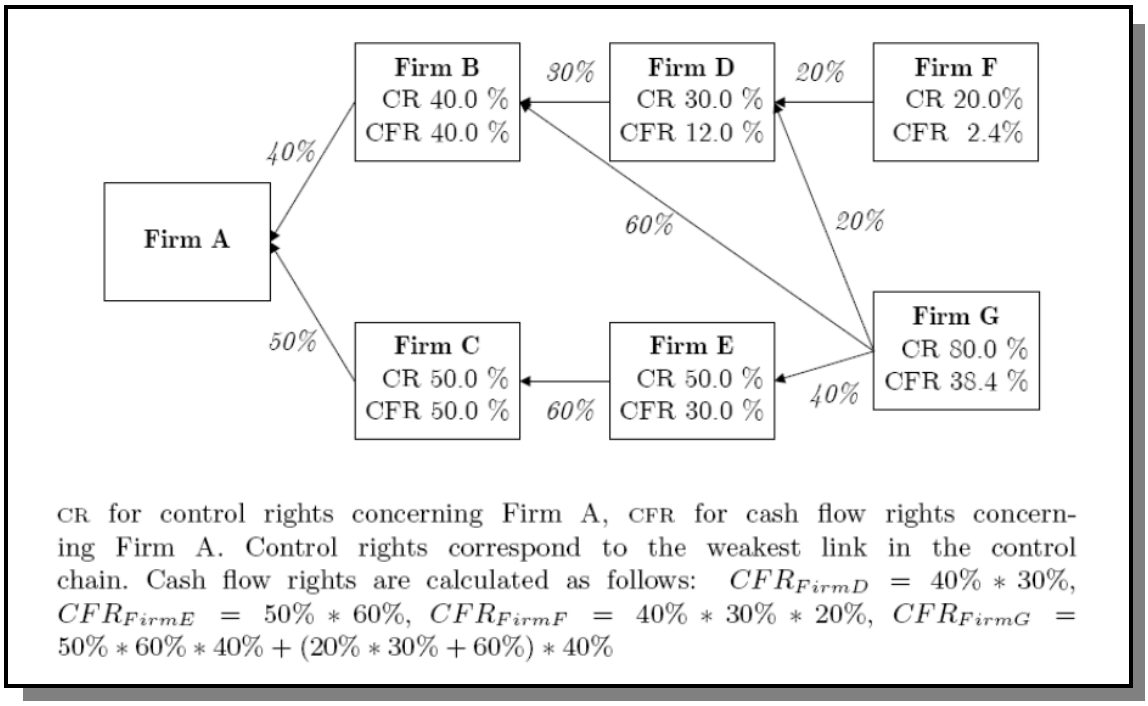
[9] See Becht [1999, p. 1073], Claessens et al. [2000, p. 91], Edwards/Weichenrieder [1999, p. 2], Faccio/Lang [2002, p. 372], and Franks/Mayer [2001, p. 961]. For the special studies on dual-class equity see Bebchuk et al. [2000], Bergstrom/Rydqvist [1990b], DeAngelo/DeAngelo [1985], Grant/Kirchmaier [2005], Hanson/Song [1995], and Jarrell/Poulsen [1988].

[10] See Faccio/Lang [2002, p. 372], Franks/Mayer [2001, p. 950], and La Porta et al. [1999, pp. 9-12].

shareholder meeting.[11] This method may proxy the voting power better than the classical definition. However, it imposes also high data requirements. Furthermore, the question "if and how to handle stock options", especially in case of managerial ownership, is still controversial and difficult to implement.[12]

Figure 2.3

Examples of Separation and Calculation of Control and Cash Flow Right



CR for control rights concerning Firm A, CFR for cash flow rights concerning Firm A. Control rights correspond to the weakest link in the control chain. Cash flow rights are calculated as follows: $CFR_{FirmD} = 40\% * 30\%$, $CFR_{FirmE} = 50\% * 60\%$, $CFR_{FirmF} = 40\% * 30\% * 20\%$, $CFR_{FirmG} = 50\% * 60\% * 40\% + (20\% * 30\% + 60\%) * 40\%$

Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 12.

With regard to owner identity, especially the definition of an insider varies in literature. Mørck et al. [1988], Agrawal/Mandelker [1990] and Loderer/Martin [1997] define only management as insiders. Hermalin/Weisbach [1991] and Holderness et al. [1999] even just consider the Chief Executive Officer (CEO)'s shareholding, and Jensen/Murphy [1990] focus on the share size of the highest paid executive. However, most studies define both managers and directors as insiders.[13] Kole [1996] and Short/Keasey [1999] solve the problem by considering both board and manager shares, but separately.

[11] See Edwards/Weichenrieder [1999, pp. 12-13].

[12] See Mehran [1995] for an assessment of stock options, control and cash flow rights.

[13] See Agrawal/Knoeber [1996], Agrawal/Mandelker [1990], Agrawal/Nagarajan [1990], Cho [1998], Holderness et al. [1999], Jarrell/Poulsen [1987], and McConnell/Servaes [1990].

A final classification of measures is referring to the type of variable: non-metric or metric, where the first is a nominal or cardinal variable, consisting of one or a set of dummy variables. Following this categorization of the measures and their evolution in literature are further examined.

2.2.2 Non-metric Measures

Non-metric measures are categorical variables, returning only a dim picture of the ownership structure. However, their simplicity also eases their use; thus, they were the first measures to be used in the ownership and performance literature. Table 2.1 gives an overview over most frequently used non-metric measures.

In earlier literature, a single dummy variable, which distinguishes only two groups of companies, was used: those with a block holder of a certain size and those without. Consequently, if the largest share owned by a shareholder or a group of cohesive shareholders is greater than a particular threshold of the stocks, the firm was classified as owner-controlled (OC). Due to the assumption that a dispersed ownership with no significant influence of the owner leaves the control to the management, the other group was labelled as management-controlled (MC). This appears misleading from a today's point of view, since the variable mirrors only general ownership concentration and not managerial ownership.

When using this measure, the share fraction needed to have control over a firm has to be defined. However, the control ability of a block holder does not only depend on the share size, but also on other circumstances as for instance the dispersion of the remaining shares. Consequently, the literature could not agree on a consistent share fraction, thus the defined threshold varies through the different studies from 5% to 50%. Nevertheless, since the stock dispersion rose with the development of stock markets, the early American studies show a trend of dropping thresholds since Berle/Means [1932]: from 20% to 10% by Larner [1966], Kamerschen [1968], and Holl [1977], reducing to 5% by Villajero [1962] and Chevalier [1969].[14] However, in later studies a general variance in definition is visible, e.g., 15% by Zeckhauser/Pound [1990] and 50% by Denis/Denis [1994].

[14] See McEachern/Romeo [1978, p. 354].

Table 2.1

Non-metric Ownership Measures

Measured aspect	Examples	Representatives studies
Ownership concentration by share size	Separation of concentrated and dispersed firms by one threshold	Berle/Means [1932], Chevalier [1969], Holl [1977], Kamerschen [1968], Larner [1966], Villajero [1962]
	Separation of concentrated and dispersed firms by two threshold with unused middle range	Radice [1971], Sorensen [1974]
	Separation of concentrated and dispersed firms with a split condition considering active control	Boudreaux [1973], Elliott [1972], Monsen et al. [1968]
	Classification of different levels of ownership concentration by more than two categories	Bothwell [1980], Hindley [1970], Jacquemin/De Ghellinck [1980], Palmer [1973b], Stano [1976]
Ownership concentration by chance of winning majority vote	Separation of concentrated and dispersed firms by probability threshold	Cubbin/Leech [1983],Leech/Leahy [1991], Nickell et al. [1997]
Ownership concentration with owner's identity	Differentiation of concentrated firms by the type of their owner	Levin/Levin [1982], McEachern [1975], Nyman/Silberstan [1978], Steer/Cable [1978], Ware [1975]
Ownership characteristics	Native categorical measures for ownership characteristics	Agrawal/Knoeber [1996], Cubbin/Leech [1986], Denis/Denis [1994], Denis et al. [1997], Johnson et al. [1985], Slovin/Sushka [1993], Steer/Cable [1978]

Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 14.

A study that accounts for the dispersion effect on control is Thonet/Poensgen [1979] who used a classification at 25%, but only if no other shareholder holds 25%. Kania/McKean [1976] tried to include control capability by not using the sole fraction of share capital of the firm, but in relation to the total market. Three cohesive shareholders are defined as controlling if they own at least 10% of the 500 largest companies, 15% of the 500-second largest companies or 20% of the following 800 companies.

Other studies define two thresholds thereby trying to circumvent the definition of one exact threshold and the resulting fuzziness of the classification around this threshold to improve their statistical results. The idea is that the resulting middle range contains the companies that cannot clearly be defined as OC or MC. Omitting the undefined middle range in the analysis would leave only correct classified companies within the sample.[15]

[15] See Radice [1971] and Sorensen [1974], who define MC for share size below 5% and OC for a share bigger than 15% and 20% respectively.

Apart from this consideration of the dispersion of shares, an improvement in the variable's ability to proxy actual control was achieved by accounting for active control by shareholders. This is achieved by splitting condition for the OC classification into two parts. The threshold lies at 10% if there is an evidence of active control by the shareholder and at 20% if not.[16]

A next step in the development of ownership measures was the incorporation of the unused but potentially valuable information of the omitted middle range of concentrations. For example Palmer [1973b] used all three ranges defined by the two thresholds and categorizes them as strong-owner-controlled (SOC), weak-owner-controlled (WOC), and management-controlled (MC) with the thresholds of 10% and 30%.This approach was copied by Stano [1976] and Bothwell [1980]. Jacquemin/De Ghellinck [1980] used the different labels of "internal control" if smaller than 5%, "minority control", and "majority control" if larger than 50%. In addition, Hindley [1970] uses the deviating nomenclature "intermediate" for ownership concentration between 20% and 40%.

The concept of the classification into OC and MC was brought further forward by Cubbin/Leech [1983] who developed a statistical definition of ownership control. It is not based on the size of the largest share, but on the chance of winning a majority vote and therefore might enhance the variable's adequacy for control over the firm. A company is owner-controlled if the probability of winning the vote lies above a defined threshold.[17] Leech/Leahy [1991] and Nickell et al. [1997] are further examples of the implementation of measures on the concept of the winning probability.

As mentioned above, these variables measure the ownership concentration and do not include owner's identity information. However, the identity has high influence on the possibility of control over the firm, which becomes obvious in the case of the unity of management and owner.[18] An owner, who is at the same time CEO of the company, obviously has higher ability of control over the company as a non-management owner. Therefore, studies started to incorporate the identity of the owner into their considerations. Ware [1975] altered the threshold for OC; it is 15% if the owner is part of the management and 25% else.[19] In contrast, McEachern [1975] modified the classic categorization by adding the group "externally controlled (EC)". Firms with the largest share below 4% are MC. If the share is bigger than the threshold and the owner is a

[16] See Boudreaux [1973], Elliott [1972], and Monsen et al. [1968]. The limit for MC is located at 5%.
[17] See Cubbin/Leech [1983, pp. 357-358].
[18] See Jensen [1986] and Jensen/Meckling [1976].
[19] Similar, Steer/Cable [1978] changed the threshold to 3% with management representation and 15% without.

management representative, it is classified as OC otherwise as EC. By a similar approach Levin/Levin [1982] distinguish institutional ownership, defining a firm with a share above 10% only as OC if the shareholder is no financial institution, otherwise it is labelled as "financially controlled (FC)". Nyman/Silberstan [1978] even introduce eight types of identity, with the most important being management, financial institutions and government.[20]

A further method to delineate the identity of the controlling shareholder is adding dummy variables. Most variables describe management, outside block-holders, family, and institutional investors.[21] These dummy variables present a special form of non-metric variables, the native categorical measures. The variables presented before converted the underlying metric information into non-metric dummies, which implies a loss of potentially valuable information. In contrast, native categorical measures differ in the way that the data is natively non-metric. The study by Johnson et al. [1985] gives a further example by considering the stock price effects caused by the sudden death of an insider.[22] They use a dummy to indicate whether the deceased was the founder.

Similarly, Agrawal/Knoeber [1996] and Denis et al. [1997] apply a dummy to reflect whether the founder is the top manager or not. However, these variables are mainly used as additional control variables.

2.2.3 Metric Measures

As shown in Table 2.2 metric ownership measures can be distinguished in two general groups: Concentration Indices, such as the Herfindahl coefficient, and Concentration Ratios. The first are measures for the symmetry of share size over all shareholders and may not say anything about the control ability of the largest shareholder. Therefore, they are rarely used in literature with the exceptions of Demsetz/Lehn [1985] and Leech/Leahy [1991].[23] This leaves the concentration ratios as alternative to the non-metric OC and MC measures, which focus on the concentration of controlling shareholders.

Ownership concentration ratios are defined as percentage of stock ownership, voting rights or cash flow rights by the largest or a group of largest shareholders. The ratio is not converted into

[20] For the full description of the groups see Nyman/Silberstan [1978, p. 85].
[21] See Cubbin/Leech [1986], Denis/Denis [1994], and Steer/Cable [1978].
[22] Slovin/Sushka [1993] performed an akin and more detailed study of this scenario.
[23] However, both studies use the Herfindahl index only as additional measure.

non-metric classifications, but used for analysis as it is. The number of shareholders consolidated in the ratio varies with the most important ones being the largest, the three largest, the five largest or the twenty largest shareholders. The chosen value often reflects the average national stock dispersion, since in high-dispersed firms an alliance of shareholders might be needed to exploit possible benefits from block holdings. Therefore, the large sum of twenty shareholders is only used in studies on USA or UK, where the ownership is very diluted. The application of such high sums to continental European countries does not appear reasonable considering that the median of the sum of the twenty largest shareholders is at 37.7% for the USA and at 60.5% for the UK.[24] At the same time, the continental European median of largest share is eight times higher than the US one and four times higher than the UK one.[25] However, the studies using such high sums of shareholding often employ several variables to avoid a proxy bias. For example Demsetz/Lehn [1985] use ratios of the largest, five largest and twenty largest shareholdings. Leech/Leahy [1991] even use additionally the ten largest shareholders. In contrast, Pedersen/Thomsen [1999], that their investigation analyzes the European continental countries, use only the largest share.

Table 2.2

Metric Ownership Measures

Measured type	Examples	Representatives studies
Ownership distribution	Herfindahl index	Demsetz/Lehn [1985], Leech/Leahy [1991],
Ownership ratios		
▪ Differentiation by degree of cumulation	Largest shareholder vs. three largest shareholder	Agrawal/Knoeber [1996], Agrawal/Mandelker [1990]
▪ Differentiation by owner type	Insider vs. institutional investors	Cho [1998], Demsetz/Lehn [1985], Jarrell/Poulsen [1987], Leech/Leahy [1991],
▪ Differentiation by unit	Share fraction vs. monetary value	Loderer/Martin [1997], McConnell/Servaes [1990], Mørck et al. [1988], Pedersen/Thomsen [1999]

Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 17.

These concentration measures can also be extended by the additional information of the owner's identity. By doing so, the concentration of the different shareholder types is reflected. These

[24] See Demsetz/Lehn [1985] for the USA and Leech/Leahy [1991] for the UK.

[25] The median of the largest share lies below 5% for US firms and at 9.9% for UK firms compared to a European median of 39.1%.

measures do not substitute measures of general ownership concentration; instead, they represent a different, additional aspect of the ownership structure.

Most studies using special identity measures, such as insider and institutional ownership, employ the total sum of shares held by one identity group.[26] Contrarily, Demsetz/Lehn [1985] and Agrawal/Mandelker [1990] use the sum of the five largest shares or the Herfindahl index of ownership.

A further dimension distinguishing the metric measures is the unit used. For example, measures of insider ownership are mainly notated in percentage of shares.[27] In contrast, Kaplan [1989] and Holderness et al. [1999] also use the dollar value of shares as basic unit.

Furthermore, a qualifying minimum share may be imposed, e.g., McConnel/Servaes [1990] and Loderer/Martin [1997] consider outside shareholders under the condition of a minimum share of 5%.[28]

Wruck [1989] and Himmelberg et al. [1999] treat some unconventional metric measures. Wruck [1989] runs an event study on the changes in ownership concentration in percentage. Himmelberg et al. [1999] employ in addition to the standard total sum of managerial shareholding also the average share per top-level manager. Their main argument for doing so is that "[...] theoretical models generally emphasize managerial ownership levels relative to the managers' wealth and not simply the fraction of firm equity held by managers".[29] Unfortunately, they only integrate this measure in the regression analyzing the determinants of managerial ownership and eliminate it in their further analysis.

2.3 FIRM (FINANCIAL) PERFORMANCE

Since economic performance is the basic goal of every firm, its measurement is one of the most interesting and challenging areas of inquiry.[30] Due to the complexity of the issue, it is unlikely to ever measure performance perfectly. Given the multitude of concepts in literature, the objective

[26] See Agrawal/Mandelker [1990], Jarrell/Poulsen [1987], Loderer/Martin [1997], McConnell/Servaes [1990, 1995], Short/Keasey [1999], and Slovin/Sushka [1993].
[27] See Agrawal/Knoeber [1996], Agrawal/Mandelker [1990], Cho [1998], Jarrell/Poulsen [1987], Loderer/Martin [1997], McConnell/Servaes [1990], and Mørck et al. [1988].
[28] For further studies, see Agrawal/Knoeber [1996], Mehran [1995], and Short/Keasey [1999].
[29] Himmelberg et al. [1999, p. 370].
[30] For a discussion on performance measures by research discipline see Hofer [1983].

of discussion presented in the following section is not to give a comprehensive picture of the literature but to focus on the performance measures common for the ownership literature.

The performance measures discussed in this section are divided into two general groups, market-based and accounting-based measures, with the first relying on market data and the latter on accounting information. A third group is hybrid measures using both types of data. The three groups and the measures most relevant for the ownership literature are shown in Table 2.3.

The following section is structured in three parts. After market-based measures are briefly discussed in the next section, Section 2.3.2 and Section 2.3.3 elaborate on accounting-based and hybrid measures respectively.

2.3.1 Market-based Performance Measures

Market-based measures find their main usage in event studies. Their characteristic of fast adaptation to information and their daily availability qualifies them for this methodology.

The typical measure is the cumulated abnormal return (CAR) with the idea to measure potential abnormal market returns related to a particular event. First, the Capital Asset Pricing Model (CAPM) is applied to estimate a function of the daily stock return of each stock in relation to the return of the market portfolio. This estimation typically uses a period of 100 to 200 days. As next step, the estimated stock returns are compared to the ones actually observed for a short period around the particular event:

$$AR_{jt} = R_{jt} - (\hat{a}_j + \hat{b}_j R_{mt})$$

With AR_{jt} as the abnormal return of company j at day t, R_{jt} as the observed stock return of company j at day t, $\hat{a}_j$ and $\hat{b}_j$ as estimated parameters from the CAPM and R_{mt} as the stock return of the market portfolio.[31] Subsequently, the abnormal returns of the considered period are summed up to the CAR:

$$CAR_j = \sum_{t=d_{j1}}^{d_{j2}} AR_{jt}$$

Where d_{j1} and d_{j2} are the starting and ending dates of the considered period around the event regarding company j. Finally, the CARs of the different firms are consolidated to an average

[31] For information on the CAPM see Lintner [1965], and Sharpe [1963, 1964].

cumulative abnormal return, which is tested for statistical significance.[32] Since the event study approach is not relevant for the following empirical analysis and the CAR is not usable for a one-year period, further issues concerning this measure are neglected.

Table 2.3

Selection of Measures of Financial Performance

Measure	Definition	Representatives studies
Market-based measures		
Cumulated abnormal returns (CAR)	Cumulated abnormal stock returns from a single unexpected event	Eckbo/Smith [1998], Lewellen et al. [1985], Loderer/Martin [1997], Seyhun [1986], Slovin/Sushka [1993]
Market returns (MR)	Growth in stock value over a specific period assuming that dividends are reinvested	Chaganti/Damanpour [1991], Holl [1977], Kim et al. [1988], Stano [1976]
Accounting-based measures		
Return on equity (ROE)	Net earnings after interest expenses and taxes divided by shareholders' equity	Demsetz/Lehn [1985], Kamerschen [1968], Monsen et al. [1968], Palmer [1973b], Short/Keasey [1999]
Return on assets (ROA)	Earnings before interest expenses and taxes (EBIT) divided by total assets	Denis/Denis [1994], Himmelberg et al. [1999], Oswald/Jahera Jr. [1991]
Return on investment (ROI)	Earnings divided by value of equity plus long-term debt	Gugler et al. [2003a, 2004], Schellenger et al. [1989]
Earning per share (EPS)	Earnings divided by number of outstanding shares	Kesner [1987], Kim et al. [1988]
Hybrid measures		
Market-to-book ratio (M/B)	Market values of liabilities divided by book values of assets that represent these liabilities	Hindley [1970], Holderness et al. [1999]
Tobin's Q ratio (Q)	Market values of liabilities divided by replacement costs of the assets that represent these liabilities	Bøhren/Ødegaard [2003], Cho [1998], Demsetz/Villalonga [2001], Himmelberg et al. [1999], Loderer/Martin [1997], McConnell/Servaes [1995], Monsen et al. [1968], Mørck et al. [1988]

Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 24.

[32] See Mathiesen [2002, pp. 118-119]. For detailed calculation methods and an assessment of different types of CAR see Mathiesen [2002, pp. 120-131].

In contrast to the commonly used CAR, the second market-based measure, market return, is rarely applied in the performance and ownership literature. It equals the growth in stock value over a specific period assuming that dividends are reinvested and thereby captures the income of shareholders in form of dividends and capital gains from stock price changes.[33]

One reason for its rare usage is given by Demsetz/Lehn [1985], who note that the stock market rates of return presumably adjust for the ownership structure and its effects on performance. Stock prices incorporates changes in expectations about future cash flows and the cost of capital. Consequently, a preferable ownership structure leads to a higher stock price. However, capital gains due to stock price changes do not reflect a preferable ownership structure, as soon as the ownership information is reflected in the stock price. Market returns should be equal for all firms with equal risks in periods when expectations are constant. Hence, they give only valuable information about the relationship of ownership and performance in the case of an unexpected event.

Nevertheless, this does not have to be the case for very long time periods as ten years or more. For example, if it were possible to measure the market return of the entire lifetime of a company, the market return would also cover the stock price changes. It dues to the ownership structure and then could be regressed on the average ownership over the lifetime. However, such an approach would provoke problems caused by missing data, the controlling of other effects and the ambiguity of calculating averages. Furthermore, it is impossible to include the implied theoretical causation and timing issues into the model.[34]

Despite the disadvantages of market return as a financial performance measure in performance and ownership studies, a few studies apply it. Yet, militating in their favor is their use of long-term averages and the additional use of an accounting-based or hybrid measure.[35]

2.3.2 Accounting-based Performance Measures

[33] See Chaganti/Damanpour [1991, p. 484], Holl [1977, p. 263], and Stano [1976, p. 672].

[34] See Mathiesen [2002, pp. 103-104].

[35] Elliott [1972] uses a three-years-average, Stano [1976] a six-years-average; Holl [1977], Levin/Levin [1982], McEachern [1975], and Thonet/Poensgen [1979] extend the time period to ten years and Sorensen [1974] even uses 18 years. Chaganti/Damanpour [1991], Levin/Levin [1982], Sorensen [1974] and Thonet/Poensgen [1979] use return on equity, return on assets and/or the market-to-book ratio as additional performance measures.

One significant advantage of accounting-based performance measures is that they are not requiring an exchange listing; thus, also private and small firms may be examined. Furthermore, they are easy to interpret.

The accounting-based performance measures most common in the ownership literature are return on equity (ROE) and return on assets (ROA).[36] They are defined as:

$$\text{ROE} = \frac{\text{Earnings after interest expenses and taxes}}{\text{Shareholders' equity}}$$

$$\text{ROA} = \frac{\text{Earnings before interest expenses and taxes}}{\text{Total assets}}$$

The ROE measures only the return on assets of the equity owners, whereas the ROA aggregates the return of equity-holders and debt-holders. This fact leads to three arguments militating in favor for a preference of ROE over ROA in equity ownership and performance studies. First, generally financial performance is based on the shareholder value concept, which is stronger reflected in the pure equity focus of the ROE than by the diluted equity returns of the ROA. Second, regarding the effect of performance on equity ownership the pecuniary benefits of shareholders play an important role. These depend stronger on the ROE than on the ROA also including the debt-holders' return. Consequently, the ROE should lead to a more significant relationship of ownership and performance improving the results. Finally, also other benefits gained by shareholders through their control rights can only be derived from residual profits. However, the rents for corporate debt are paid according to predetermined contracts and therefore not part of the residual profits. Thus again the ROE should better proxy the financial performance and its effect on ownership. The inclusion of the return of debt-holders would again dilute the performance measure and its relation to ownership. However, the discussion of ROE or ROA appears irrelevant when taking a look at the seven studies that used both measures.[37] They obtain similar coefficients for both. However, as predicted by the arguments above, the ROA sometimes appears insignificant in contrast to the highly significant ROE as in the study of Chaganti/Damanpour [1991].

[36] For studies using the ROE see Boudreaux [1973], Demsetz/Lehn [1985], Demsetz/Villalonga [2001], Gugler et al. [2004], Jarrell/Poulsen [1988], Kamerschen [1968], Leech/Leahy [1991], Mak/Li [2001], Monsen et al. [1968], Mudambi/Nicosia [1998], Palmer [1973a,b], Pedersen/Thomsen [1999], and Short/Keasey [1999]; for those using ROA see Bøhren/Ødegaard [2003], Gedajlovic/Shapiro [2002], Himmelberg et al. [1999], Kole [1996], McConnell/Servaes [1990], and Mehran [1995]. For studies applying both measures see Chaganti/Damanpour [1991], Denis/Denis [1994], Kesner [1987], Lehmann/Weigand [2000], Murali/Welch [1989], Oswald/Jahera Jr. [1991], Schellenger et al. [1989], and Steer/Cable [1978].

[37] See Chaganti/Damanpour [1991], Denis/Denis [1994], Kesner [1987], Murali/Welch [1989], Oswald/Jahera Jr. [1991], Schellenger et al. [1989], and Steer/Cable [1978].

Further accounting-based performance measures, as the return on investment or the earnings per share, are rarely used and will be neglected in the further conduct.[38]

When calculating accounting-based variables the return measure or the kind of income to be used, has to be carefully defined. Book return can be disaggregated into three components:

1. income from ordinary operating activities,
2. income from extraordinary activities, and
3. non-operating income.

The latter stems from non-operating activities, such as rents and patents but also from return on non-operating financial assets. It could be argued that these returns are arbitrary and mainly elude from the management's influence and are therefore not related to ownership structure. The inclusion of non-operating results would bias the actual performance measure. An objection is that managers decide on the assets creating non-operating income. For example, the selection of financial assets is part of the responsibilities of the Chief Financial Officer (CFO). Nevertheless, the maximization of non-operating income is normally not the function of the CFO.

The second income component originates from extraordinary activities. These are infrequent and unusual events, e.g., restructuring activities or changes in accounting principles. The inclusion of the income of extraordinary activities may also cause potential problems. It distorts the given picture of regular performance and hence diminishes the comparability of companies. Yet, this is only the case for small samples. Due to the Central Limit Theorem, large samples are not affected by these one-time effects.[39] Therefore, the exclusion of extraordinary income from large samples studies would only result in a loss of information.

A further problem of accounting-based measures is the accounting bias. The comparability of accounting variables may suffer from different accounting standards applied by the companies. In addition, the reporting entities are incentivized to distort the data.

[38] For studies applying the return on investment see Gugler et al. [2003a, 2004] and Schellenger et al. [1989], for studies applying the earnings per share ratio see Kesner [1987] and Kim et al. [1988].

[39] The Central Limit Theorem states: Given a population with *any* distribution and taking random samples of size n from that population, the sample means ($\bar{x}$) will be approximately *normally distributed* with a mean equal to the mean of the population and a variance equal to the variance of the population divided by n. The higher n, the closer the distribution will be to be normal, i.e., for a population with the mean μ and the variance σ^2, the mean of a drawn sample is $\lim_{b \to N} \bar{x} = N\left(\mu, \frac{\alpha^2}{n}\right)$.

2.3.3 Hybrid Performance Measure

While the two previous parts discussed measures that purely rely on either market or accounting data, the following measures, the market-to-book ratio (M/B) and the Tobin's Q (Q), use both, market and accounting data.[40]

The M/B is defined as market value of the firm's liabilities divided by the accounting value of these liabilities. It measures how much market value is generated by the stock of invested capital. There are two ways to calculate the M/B:

1. market value of stock divided by the shareholders' equity (market-to-equity), or
2. market value of stock and debt divided by total assets (market-to-assets).

These definitions resemble the accounting-based measures ROE and ROA; they apply the same denominator and instead of the accounting earnings, they use the market values of liabilities in the nominator. Hence, the discussion, whether one of the two methods of calculation is preferable, takes an analogous course to the discussion of ROE and ROA in Section 2.3.2. As a result, the market-to-equity ratio seems to be advantageous over the market-to-assets ratio.

The usage of market value of liabilities yields in two advantages of the M/B over the accounting-based measures. First, the inclusion of extraordinary items is no issue in the case of the M/B. Second, market data cannot be manipulated by management, as accounting data can. Nevertheless, as the M/B includes book values, it is not completely free of the accounting bias. Furthermore, the reliance on market data creates also a disadvantage of the M/B. Sudden outburst and speculative market movements that are not motivated by changes in the expectations can make it less representative as performance measure.

The advantages and disadvantages do not only apply to the M/B but also to the second hybrid measure, the Tobin's Q. Tobin [1969] introduced the concept of the Tobin's Q as the ratio of market value to replacement values of a firm's assets.[41] Since then it has been frequently used as performance measure in the ownership literature.[42] The original definition of Tobin makes the

[40] In principle, the Tobin's Q should be categorized as a market-based measure. However, the ideal composition of pure market data is mostly replaced by an approximation including accounting data.

[41] See Tobin [1978].

[42] The following studies use the Tobin's Q: Barnhart/Rosenstein [1998], Bøhren/Ødegaard [2003], Chang [2003], Chen et al. [1993], Cho [1998], Cui/Mak [2002], DaDalt et al. [2003], Demsetz/Villalonga [2001], Gugler et al. [2004], Hermalin/Weisbach [1991], Himmelberg et al. [1999], Loderer/Martin [1997], Mak/Li [2001], McConnell/Servaes [1990, 1995], Monsen et al. [1968], Mørck et al. [1988], Palia/Lichtenberg [1999], and Weber/Dudney [2003].

Tobin's Q theoretically a market-based measure. However, since it is often estimated on the basis of accounting and market data, it is here categorized as a hybrid.

The Tobin's Q is closely related to the M/B. However, in contrast to the M/B using the book value of the total assets as denominator, the Tobin's Q applies the replacement values of assets. Consequently, instead of measuring the financial performance of the existing assets, the Tobin's Q measures the financial performance of a new investment assuming the possibility to reproduce the entire existing production capacity. It is profitable to invest in the reproduction of the production capacity as long as the Tobin's Q is above one. As a consequence, while the M/B and other performance measures are present and past oriented and state if it were profitable to have invested in a company, the Tobin's Q has a future orientation and is therefore rather an investment profitability measure. This difference in explanatory power creates a potential problem: The Tobin's Q is no direct measure of financial performance but a proxy. This may cause a proxy error in the variables, which results in lower significance levels if it is used as endogenous variable, and in inconsistent variables if it is used as explanatory variable.[43]

The quality of a proxy and therefore the strength of the proxy error depend on its correlation with direct measures. Fortunately, in the case of Tobin's Q there are several arguments for a high correlation with financial performance and consequently for an adequacy as performance measure. Companies with a high Tobin's Q find it easier to expand their capacity and hence to make higher returns. This does not mean that a firm with a low Tobin's Q cannot achieve the same, but it is more difficult and may take longer. Consequently, a high correlation exists especially for shorter time horizons. Furthermore, high book and market returns should condition high market values and thus a high Tobin's Q. Additionally, the issue of measurement errors is not a problem limited to the Tobin's Q, but seems to apply to all financial performance measures. Finally, Chung/Pruitt [1994] state its similarity to the concepts of economic and market value added and forecast even a gain in importance of the Tobin's Q by virtue its advantages as standardized measure.[44] Regarding the ownership literature, the probably most important, but practical reason for its usage is that it produces next to the M/B the most significant estimates in regressions.

Unfortunately, the calculation of the Tobin's Q can be very complicated and complex, especially for continental European countries. Their accounting standards allow companies to report historic purchase values, in contrast to Anglo-American accounting standards that require a reporting of

[43] For detailed information see Maddala [1992, Chapter 11].
[44] See Chung/Pruitt [1994, p. 74].

current values. This complicates the estimation of the replacement values. To cope with these problem different approaches evolved which can be classified into two general competing groups.

The first approach is a computationally costly and complex algorithm, which demands sophisticated programming. It uses an extensive set of financial statement information as estimation basis for both market and replacement values. The data is then adjusted for factors that call for a systematic divergence between market and accounting values. This effort yields extremely accurate estimates.[45] Several variants of the approach are currently in use. They all base on the first calculation method of Lindenberg/Ross [1981], with the most commonly used enhancements developed by Hall [1999], Lewellen/Badrinath [1997], Lee/Tompkins [1999], and Perfect/Wiles [1994]. Exemplarily, the calculation formula of the Lindenberg/Ross [1981] approach omitting the adjustment procedure will be explained:[46]

$$Q_{LR} = \frac{MV_t}{RC_t} \approx \frac{MVD_t + MVCS_t + MVPS_t}{BVTA_t + (RCFA_t - BVFA_t) + (RCINV_t - BVINV_t)}$$

where
Q_{LR} = Tobin's Q estimate by Lindenberg/Ross [1981]
MV_t = year-end market value of outstanding financial claims,
RC_t = year-end replacement costs of production capacity,
MVD_t = year-end market value of outstanding debt,
$MVCS_t$ = year-end market value of outstanding common stock,
$MVPS_t$ = year-end market value of outstanding preferred stock,
$BVTA_t$ = year-end book value of total assets,
$RCFA_t$ = year-end replacement costs of fixed assets,
$BVFA_t$ = year-end book value of fixed assets,
$RCINV_t$ = year-end replacement costs of inventories, and
$BVINV_t$ = year-end book value of inventories.

By this formula, the complexity and high data needs of the Perfect/Wiles's Tobin's Q become obvious.[47] As a result, the costly approaches suffer from a sample-selection bias and may cause a loss of up to 20% in sample size.[48]

[45] See DaDalt et al. [2003, p. 537].
[46] See Lindenberg/Ross [1981, pp. 10-17].
[47] The other techniques as the ones of Lindenberg/Ross [1981] and Hall [1999] have even higher data requirements, making it hard to implement them.
[48] See DaDalt et al. [2003, p. 551].

On this account and due to the high effort, researchers developed a more simple-group of approximations for the Tobin's Q to circumvent the complex accurate calculation. Hence, competing estimation approaches evolved using a comparatively small set of financial statement information with minimal adjustments. An important representative is the approximation by Chung/Pruitt [1994]. It estimates the Tobin's Q as follows:[49]

$$Q_{CP} = \frac{MVE_t + PS_t + BVINV_t + LTDEBT_t + CL_t - CA_t}{TA_t}$$

where
Q_{CP} = Tobin's Q estimate by Chung/Pruitt [1994],
MVE = year-end value of common stock,
PS = liquidation value of preferred stock,
$BVINV$ = year-end book value of inventories,
$LTDEBT$ = year-end book value of long-term debt,
CL = year-end book value of current liabilities,
CA = year-end book value of current assets, and
TA = book value of total assets.

The liquidation value of preferred stock is used due to difficulties in obtaining price quotes for preferred stock. It can be calculated by aggregating the preferred stock market value and dividing it by Standard & Poor's preferred stock yield index.[50]

These approximations, of course, do not yield as accurate results as the original calculations do. However, Chung/Pruitt [1994] also verify the good approximation quality of their approach by comparing their measure to the Tobin's Q of Lindenberg/Ross [1981] where they find a $\overline{R}^2$ of at least 96%.[51] Furthermore, DaDalt et al. [2003] also analyzed the quality of the Tobin's Q of Chung/Pruitt [1994] by benchmarking it against the calculation method of Perfect/Wiles [1994].[52] They concluded that the simple technique is preferable, except for cases where extremely precise estimates are needed and a sample-selection bias is no issue.[53] In addition, DaDalt et al. [2003] further found both approaches are significantly related to a wide range of financial performance measures.

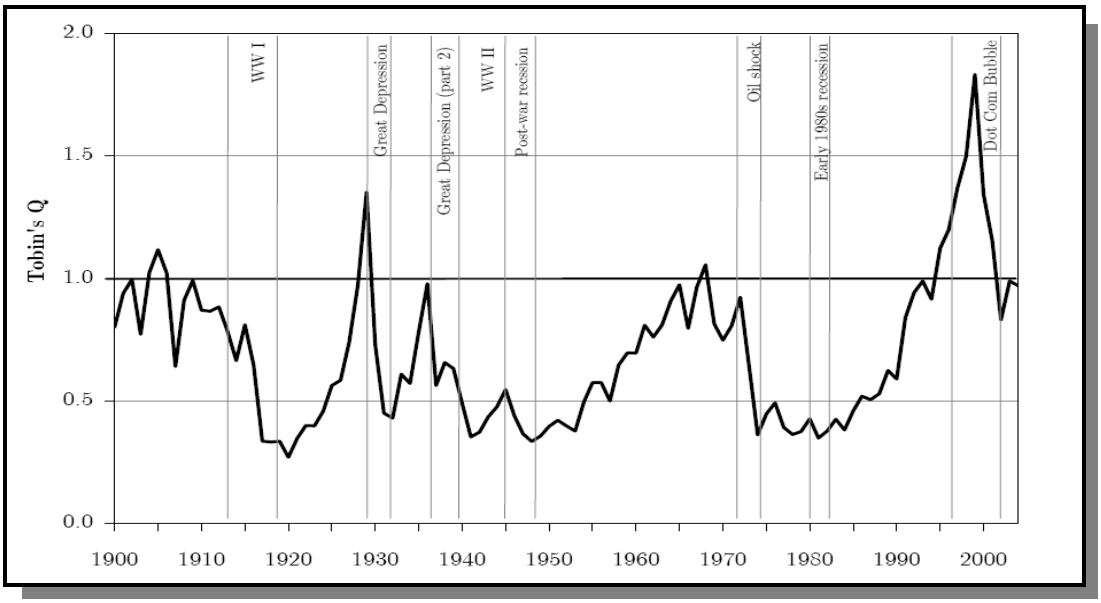
[49] See Chung/Pruitt [1994, p. 71].
[50] See Lindenberg/Ross [1981, pp. 10-11].
[51] See Chung/Pruitt [1994, pp. 71-74].
[52] For the calculation of the Tobin's Q of Perfect/Wiles [1994] see Perfect/Wiles [1994, p. 322].
[53] See DaDalt et al. [2003, pp. 550-551].

Theoretically, the value of the Tobin's Q is one if the firm is traded at the exact replacement costs of its assets. A Tobin's Q above one implies that market value is greater than replacement value of the company's recorded assets. These high values can result from some unmeasured or unrecorded assets of the company or positive earnings expectations reflected in the market value. Contrary, if the Tobin's Q is less than one, the market value is less than replacement value of the assets. This equals an undervaluation, which makes the company a possible takeover target, since it is traded at a value less than the value of its parts. Both over- and undervaluation should be regulated by the market in the long run, thus the company is priced at its reproduction costs. Hence, on an aggregate basis the Tobin's Q should tend to be mean reverting, converging at one.[54]

However, since the Tobin's Q reflects the over- undervaluation, and markets can be over- or undervaluated as total, the Tobin's Q in practice also depends on the general market valuation and therefore the economic situation. Due to this sensitivity to the general economic environment, the Tobin's Q is often far from one and varying strongly over time, as shown in Figure 2.4. In the period from 1900 to 2004, the average Tobin's Q for the United States tended to revert to 0.63 instead of one as predicted by Tobin.[55]

Figure 2.4

Historic Values of Tobin's Q in the USA



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 32.

[54] See Tobin [1978, p. 422].

[55] It varied in values between low 0.27 in 1920 and 1.83 in 1999. See Smithers/ Wright [2000].

2.4 THE PREVIOUS RESEARCHES AND EMPIRICAL EVIDENCES IN ASIA

Researches about ownership structure, capital structure, and firm performance show varied results. It becomes interesting when we analyze some research findings that show the ownership characteristics of Asian corporations and the incentive effect of concentrated ownership. This section begins with an overview of the ownership structures of firms in Asia, followed by a discussion of the causes of the ownership structures. The empirical evidences then discuss how the ownership structures delineate the incentives of managers and owners of the firms, how they affect corporate policies, and the roles of ownership structures in affecting the economic performance and valuation of firms. At the final of this section, it is given empirical evidences that relate to capital structure in Asia.

2.4.1 Ownership Characteristics of Asian Corporations

Unlike companies in the U.S. and U.K. whose shares are diffusely held, one or several members of a family tightly hold shares of a typical Asian corporation. The company is often affiliated with a business group also controlled by the same family, with the group consisting of several to numerous public and private companies. The family achieves effective control of the companies in the group by means of stock pyramids and cross-shareholdings, which can be quite complicated in structure. Moreover, voting rights possessed by the family are frequently higher than the family's cash flow rights on the firm. Voting rights consequently exceed formal cash-flow rights, especially in Indonesia, Japan, and Singapore. Claessens et al. [1999] find that more than two-thirds of firms are controlled by a single shareholder. Separation of management from ownership control is rare, and the top management of about 60% of firms that are not widely held, is related to the family of the controlling shareholder. These findings have important implications for the ability and incentives of controlling shareholders to expropriate from minority shareholders, as shown in a companion paper.[56]

Claessens, Djankov, and Lang [2000] report these ownership characteristics in detail for a large sample, 2,980 of listed companies in nine Asian economies. Significant cross-country differences exist, however. Corporations in Japan, for example, are generally widely held, while corporations in Indonesia and Thailand are mainly family controlled. State control is significant in Indonesia, Korea, Malaysia, Singapore, and Thailand. The separation of ownership and control is most

[56] See Claessens et al. [1999, p.82]

pronounced among family-controlled firms and among small firms. In Korea, Singapore, and Taiwan, large family-controlled firms also display a significant wedge between ownership and control. Claessens et al. [2000] find that older firms are more likely to be family controlled, as are smaller firms. The concentration of control generally diminishes with the level of a country's economic development.

The evidence also suggests that in some countries a significant share of corporate assets rests in the hands of a small number of families. At the extreme, 16.6% and 17.1% of the total value of listed corporate assets in Indonesia and the Philippines, respectively, can be traced to the ultimate control of a single family. The largest ten families in Indonesia, the Philippines, and Thailand control half of the corporate assets in our sample, while the largest ten families in Hong Kong and Korea control about a third of the corporate sector. The exception is Japan, where family control is insignificant. The concentrated family ownership is further confirmed in several single-economy studies, including Joh [2003] on South Korea, Yeh, Lee, Woidtke [2001] on Taiwan, and Wiwattanakantang [2003] on Thailand.

Although high ownership concentration is common among Asian corporations, the extensiveness of the cross-shareholding or pyramid structures varies across Asian economies. Although quite popular in Korea and Taiwan according to the cited studies, in Thailand almost 80 percent of the controlling shareholders do not employ cross-shareholding or pyramid structures. In addition to family, the state also controls a significant number of listed companies in several economies, such as in Singapore and predominately so in China. Unlike Japan, control by financial institutions is less common in developing Asia. Individual or institutional investors typically only hold minority portion of corporate shares.

2.4.2 The Literature on Ownership Structure in East Asia

As surveyed in Rodrik [1997], numerous scholars have examined the performance of East Asian corporations over the last four decades, but their ownership structure and the separation between ownership and control remain largely unknown. Several studies on corporate governance, which have done in Japan,[57] point to the significance of keiretsu groups. These studies focus, however, on company performance, and do not attempt to trace the ownership of each company to its ultimate owners and identify those owners by type and control stake. The

[57] See Aoki [1990]; Prowse [1992]; Hoshi et al. [1991]; Kaplan [1994].

exception is Lim [1981] who studies in detail the ownership structures of the largest 100 corporations in Malaysia.

There do exist, however, a number of case studies that describe the ownership and control structures of some of the largest business groups in East Asian countries: Taylor [1998] for the Li Ka-shing group in Hong Kong, Sato [1993] for the Salim group in Indonesia, Okumura [1993] for the Mitsubishi group in Japan, Taniura [1993] for the Lucky Goldstar group in Korea, Koike [1993] for the Ayala group in the Philippines, Numazaki [1993] for the Tainanbang group in Taiwan, Taniura [1989] for the Formosa group in Taiwan, Suehiro [1993] for the Charoen Pokphand group in Thailand, and Vatikiotis [1997] for the Dhanin Chearavanont group in Thailand.

These case studies provide us with insights into the evolution of corporate ownership and control in East Asia. The findings suggest that the dominance of most business groups lies in the privileges that they solicit from the government: exclusive exporting or importing rights, protection from foreign competition for extensive periods of time, granting of monopoly power in the local market, procurement of large government contracts, etc. The case study literature does not allow, however, for cross-country comparisons; neither does it document the precise mechanisms through which the owners are able to exercise and extend their control.

The recent contributions of La Porta et al. [1998] and La Porta et al. [1999] go a long way towards filling this gap in our knowledge. The former study documents the ownership structure of the ten largest non-financial corporations for a cross-section of 49 countries, including nine East Asian countries. The results show that although ownership concentration of East Asian corporations is high, it is not significantly different from that in other countries at similar levels of economic and institutional development. The latter study investigates in great detail the control structure of the largest 20 publicly traded corporations in 27 rich countries, including four (Hong Kong, Japan, Korea, and Singapore) East Asian countries. It traces control to the ultimate owners of each company and distinguishes among five types of owners. Ownership in the majority of Japanese and Korean corporations is found to be widely dispersed; corporations in Hong Kong are predominantly controlled by families, while about half of the sampled companies in Singapore are controlled by the state.

La Porta et al. [1999] also examine the means through which control is enhanced. The study shows that owners extend their resources through the use of pyramiding and management appointments, as well as through cross-ownership and the (infrequent) use of shares that have

more votes. They document that control of East Asian corporations can be achieved with significantly less than an absolute majority share of the stock, as the probability of being a single controlling owner through holding only 20% of the stock is very high (above 80% across the four East Asian countries).

2.4.3 Causes of Ownership Concentration

Why is corporate ownership so highly concentrated in Asia? Why does family ownership dominate other form of ownership? How has ownership structures evolved over time? What can we say about the future of family ownership? Most of these questions have not been adequately addressed empirically in general or for Asia specifically. The body of property rights literature to date emphasizes the roles of customs, social norms, and law and legal systems in shaping the structure of property rights and governance systems. More specifically, the literature points some considerations to the balance between public and private enforcement of property rights as affecting the degree of concentrated ownership [Eggertsson 1990].

The argument is as follows. Both individual owners and the state can enforce property rights. In economies where the state does not effectively enforce property rights, enforcement by individual owners will be most important. The structure of share ownership itself will then affect the degree to which corporate contracts can and will be enforced because it affects owners' abilities and incentives to enforce their rights. One prediction from this framework is that ownership that is more concentrated will be observed in economies where property rights are not well enforced by the state. Without relying on the state, controlling owners obtain the power (through high voting rights) and the incentives (through high cash flow rights) to negotiate and enforce corporate contracts with various stakeholders, including minority shareholders, managers, laborers, material suppliers, customers, debt holders, and governments. All parties involved in the corporation prefer this outcome as they share, although to different degrees, in the benefits of this concentrated ownership through better firm performance.

Using this framework, Shleifer/Vishny [1997] suggest that the benefits from concentrated ownership are relatively larger in countries that are generally less developed, where property rights are not well defined and/or not well protected by judicial systems. La Porta, Lopez-De-Silanes, and Shleifer [1999] confirm this proposition empirically as they show that the ownership stakes of the top three shareholders of the largest listed corporations in a broad sample of countries around the world are associated with weak legal and institutional environments.

The weak state enforcement of property rights is the most probable cause of the concentrated ownership of Asian corporations as well, as they often confront weak legal systems, poor law enforcement, and corruption. Likewise, the weak property right systems in Asia may also explain why family-run business groups have been the dominant organizational forms. Family ownership and groups are institutional arrangements. They facilitate transactions, are that, the transaction costs among family members and closely affiliated corporations face a lower degree of information asymmetry and less hold-up problems that may otherwise prevail in transactions among unaffiliated parties. Another related reason for the prevalence of groups in Asia may be poorly developed external markets, both financial, managerial and other factor markets, which tends to favor internal markets for the allocation of resources.

2.4.4 Empirical Evidence on Capital Structure in Developing Countries (Asian Countries)

Hamid/Singh [1992], who analyze the corporate finance characteristics of the top 50 manufacturing firms in India, Thailand, Jordan, Malaysia, Taiwan, Mexico, Pakistan, Zimbabwe and South Korea over the period 1980-1987, find that firms in developing countries used less internal finance than their developed economy counterparts did. They attribute this to different growth rates, and to lower retention ratios, rather than, for example, to the distorting influences of inflation which has had a major influence in at least some developing economies. Atkin/Glen [1992] and Singh [1995] reach similar conclusions. As with firms that are found within the developed economies, the use of internal sources of finance does vary across developing countries. Atkin/Glen [1992] survey macroeconomic data on the corporate sector in several developing economies (Zimbabwe, Pakistan, Malaysia, India and South Korea), and find that Zimbabwean and Pakistani firms rely most heavily on internal finance: 58.5% and 58.3% respectively of all sources, whilst South Korean firms were least dependent with 12.8%.[58] They argued that, as South Korea has a more advanced financial system, it provides a greater number of external financing options for investment projects; and, indeed, South Korean firms do use a greater amount of external finance, both equity and long-term debt, than do Pakistani firms. Cobham/Subramaniam [1998] find that Indian firms use rather more equity and less retained earnings than do their UK counterparts.

Hamid /Singh [1992] and Singh [1995] find that firms found within developing economies rely more heavily on equity than on debt to finance growth relative to their counterparts in the

[58] See also Guariglia [1999].

developed economies. A reverse pecking order is observed. Singh [1995] argues that the dependence of firms in developing economies on capital markets is due to:

1. active government sponsorship, such as privatization, and specific policies that encourage the demand and supply of funds;
2. financial liberalization which has resulted in higher real interest rates and therefore reduced demand for bank finance; and
3. rising price-earnings ratios that have reduced the cost of equity capital. Cobham/Subramaniam [1998] note that these conclusions are puzzling, given the developing countries' lax accounting and auditing protocols, which increase information imperfections, their less well-defined property rights, and small and inefficient capital markets.

Taken together, these factors suggest that firms will use bank-based finance rather than the capital markets. Cobham/Subramaniam [1998] argue that the studies of Hamid/Singh [1992] and Singh [1995] suffer from small-sample bias. To correct for this, Cobham/Subramaniam [1988] conduct a micro-study using two data sets for India: the ICICI (composed of 1013 firms for 1980-1992) and the RBI (containing 1650 firms for 1975-1990), and one for the UK (Business Monitor consisting of 2000 firms for the period 1982-1990). It was found that the behavior of large Indian and UK firms were the same in terms of borrowing through the issue of bonds; however, from the ICICI sample, a negative dependence was noted between size and equity-finance ratios. Cobham/Subramaniam [1988] suggest that this behavior is due to smaller firms having lower agency costs since the firms will most likely issue new equity to existing shareholders/directors who are already familiar with the firm rather than to the public directly.[59]

Nagano [2003] that investigates the determinant of corporate capital structure in East Asia countries (Indonesia, Malaysia, Korea, the Philippines and Thailand) in the aftermath of the 1997 Asian financial crisis reports that there is a high level of dependency by firms on short-term external financing. Based on empirical analyses, the study found a significant negative relationship between firm profitability and corporate debt-to-equity (DE) ratio in all the sample countries. Firm size also has a direct relationship with DE ratio in many countries. On the other hand, the relationship between corporate debt-to-equity (DE) ratio and firm's tangibility - generally significant in the industrialized countries - is entirely insignificant even in the post-crisis period.

[59] Indeed, this suggests that there is a large degree of *intra*-country differences in capital structures. This (i) concurs with the observation made by Mayer/Banks (1990) who find *intra*-country differences in the capital structures of German and UK firms; and (ii) the major disadvantage of using flow-of-funds data when making any comparisons since a potentially large amount of information is not captured by the data. Also, and unlike the majority of ratio studies, Cobham/Subramaniam [1998] use aggregate flow-of-funds data against company accounts. This could also explain the difference between Cobham/Subramaniam's [1998] and Hamid and Singh's findings.

Cross-country investigation of the financing environment in each of the sample countries showed that firms in the region appear to have a pecking order in so far as their corporate finance decision-making is concerned. They have the highest preference for internal funds, with its characteristic smaller information cost, and secondarily for short-term bank loans. In general, banks exercise close monitoring of their debtor clients, which enable them to understand and anticipate credit risks. The generally close relationship between debtor firms and creditors appear to lower information asymmetry and may be one of the factors in the high dependency of firms on external bank loans. This situation could be summarized in Table 2.4.

Table 2.4

Financial Technique in the East Asian Countries

		Indonesia		Korea		Malaysia		Philippines		Thailand	
		Pre-crisis	Post-crisis	Pre-crisis	Post-crisis	Pre-crisis	Post-crisis	Pre-crisis	Post-crisis	Pre-crisis	Post-crisis
Short-term	Bank loans	*	*	*	*	*	*	*	*	*	*
	Overdraft	*	*	*	*	*	*			*	*
	Discounting of trade bills	*	*	*	*	*	*	*	*	*	*
	Commercial paper	*		*	*	*	*	*	*	*	*
	Banker's acceptance					*	*	*	*		
	Inter-company borrowing	*		*		*	*	*	*	*	*
	Factoring	*		*		*	*	*	*	*	*
	Supplier credit	*	*	*	*	*	*	*	*	*	*
Long-term	Bank loans	*	*	*	*	*	*	*	*	*	*
	Private placement of notes			*	*	*	*	*	*	*	*
	Corporate bond issues			*	*	*	*				
	Commercial paper							*	*		
	Financial leasing	*	*	*	*	*	*	*	*	*	*
	Structured financed	*	*		*		*			*	*
	Equity finance	*	*	*	*	*	*	*	*	*	*
Single borrower's limits			Yes		Yes			Yes	Yes		
Regulation on borrowing from abroad			Yes	Yes			Yes	Yes	Yes		Yes
Regulation on inter-company finance			Yes		Yes	Yes	Yes	Yes	Yes		Yes

Note: * Pre-crisis: before 1997
** Post-crisis: after 1998
* means the technique has high use in the country. Blank means it is not legally permitted or considered to be very low use.

Source: Nagano, Mamoru [2003]. "Determinant of Corporate Capital Structure in East Asia" Waseda Institute of Finance, Working Paper, p. 10.

2.5 AGENCY THEORY AND CAPITAL STRUCTURE CHOICE

Most of the hypotheses formulated in the following are based on the economic principal-agent theory, where a positive effect stems from the amelioration of the shareholder-management conflict, e.g., by disciplining the management. Analogously, an aggravation of the conflict results in a negative effect.

The principal-agent theory is part of the new institutional economics, which developed as extension of the neoclassicism. It abandons the assumption of a complete market by allowing informational asymmetries and transaction costs to cause incomplete contracts.[60] This leads to a methodological individualism, which does no longer consider institutions as profit maximizing collectives, but as a "nexus for a complex set of explicit and implicit contracts of individuals".[61] Consequently, the economic focus on markets is shifted to man-made institutions, incorporating the individual into economic theory.

The agency theory in particular analyzes the contractual conflicts arising from informational asymmetry.[62] An agency relation is based on an explicit or implicit contract between the agent and the principal delegating decision power to the agent.[63] Due to the contract, the agent's actions influence the utility of both contractual partners.[64] However, the agent behaves opportunistically maximizing his profit regardless of the principal's interests. In the case of incomplete informational structures for the benefit of the agent, the principal cannot prevent those harming actions.[65] Consequently, an agency conflict requires two conditions, a conflict of interest through diverging utility functions of the principal and the agent as well as the existence of informational asymmetries.[66] These informational asymmetries are classified into different forms shown in Figure 2.4.

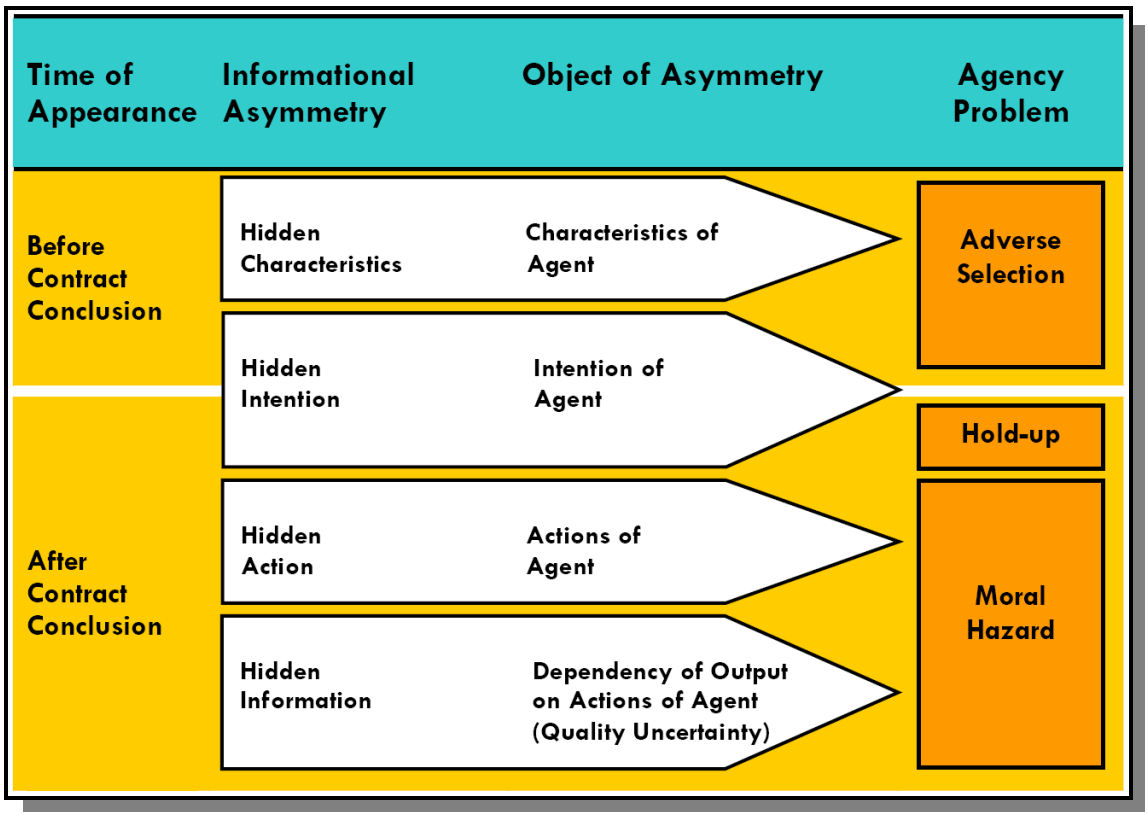
Hidden characteristics are important features of the agent unknown to the principal before contract conclusion. The uncertainty over the agent's quality may lead to an adverse selection in the agent's engagement.[67] Since this work deals with already existing contracts, this form is not further considered.

The hidden intention of the agent to harm the principal can result in a problem before and after the contract conclusion. Besides problems of adverse selection, it can cause a hold-up problem, where the principal recognizes the opportunistic actions of the agent, but cannot sanction him or prevent his actions. Consequently, the agent will not change his behavior.[68]

[60] See Barnea et al. [1981, p. 8] and Richter/Furubotn [1999, p. 137].
[61] Jensen/Meckling [1976, p. 310]. See Richter/Furubotn [1999, p. 5].
[62] See Barnea et al. [1981, pp. 25-26] and Richter/Furubotn [1999, p. 3].
[63] See Jensen/Smith [1985, p. 96] and Richter/Furubotn [1999, p. 163].
[64] See Jensen/Meckling [1976, p. 308] and Richter/Furubotn [1999, p. 25].
[65] See Jensen/Meckling [1976, p. 305] and Richter/Furubotn [1999, p. 163].
[66] See Richter/Furubotn [1999, p. 163]
[67] See Richter/Furubotn [1999, pp. 144-145 and p. 509]
[68] See Breid [1995, pp. 823-824]

Figure 2.5

Forms of Informational Asymmetries in Agency Theory



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 38.

If after the contract conclusion the result of the agent's actions is also influenced by other exogenous factors, the problem of moral hazard can arise. One information asymmetry conditioning this problem is the hidden action, where the principal can observe the results, but cannot draw conclusions on the effort of the agent.[69] The second informational asymmetry is hidden information. The principal knows both the result and the agent's effort. However, he lacks information on the input-output relation and thus cannot assess the work of the agent.[70] Kleine [1995] compares the situation with a production. In the case of hidden action, the principal does not know the input by the agent. At the occurrence of hidden information, he sees the input and output, but does not know the parameters of the production or transformation function.[71]

[69] See Darrough/Stoughton [1986, p. 501] and Spremann [1987, p. 343].
[70] See Hartmann-Wendels [1989, p. 715] and Richter/Furubotn [1999, pp. 215-217].
[71] See Kleine [1995, p. 31].

These conflicts, however, hurt the welfare of both the principal and the agent, since the principal anticipates the reduced utility given rational expectations and partially passes it on to the agent. Consequently, it is often in the interest of both parties to reduce the conflict.[72]

The principal can reduce the conflict by controlling the agent or by reducing the information asymmetry. These efforts are called monitoring, where explicit monitoring consists of governance activities and implicit monitoring summarizes forms of information gathering.[73] The conflict can also be reduced by trust building actions by the management that are called bonding.[74] However, as both efforts also create costs, only a second-best solution is achieved.[75] The difference between the first-best and second-best solution is called agency costs. They are distinguished on the basis of their origin into monitoring or control costs, bonding costs, and residual loss.[76]

The economic principal-agent theory knows two major conflicts: the shareholder-management conflict and the debt holder - shareholder conflict. However, since this work focuses on the relation of equity ownership and performance where already Cook [1984] state the loss of control over the management as the key critical issue, only the first conflict is further considered. The shareholder-management conflict is based on the separation of ownership and control by Berle/Means [1932]. It assumes informational asymmetries in favor of the management due to their daily professional occupation with the company and the market.[77] Furthermore, a conflict of interest exists through differing utility functions. While the shareholder's utility consists of the two monetary elements dividends and changes in stock price, the manager features a more complex utility function. It is composed by the monetary effect of the fixed and variable remuneration and considerations of personal risk, career prospects, prestige, and other personal interests.[78] The quality and quantity of work performed by the management has a direct negative effect on its utility, but a positive one on shareholders' gain. However, it might have a positive indirect effect on management incentive through performance-based compensation, prestige, and career prospects.[79] The conflict of interest together with the informational asymmetry causes the problem of moral hazard.

[72] See Jensen/Meckling [1976, p. 309] and Jensen/Smith [1985, p. 97].
[73] See Bushee [1998, p. 309] and Jensen/Smith [1985, p. 97]
[74] In the shareholder - management conflict these might include the application of certain accounting standards [Jensen/Smith 1985, p. 126] or the creation of a positive reputation [Spremann 1988, p. 619]
[75] See Coase [1937, pp. 390-391], Jensen/Meckling [1976, p. 308], and Jensen/Smith [1985, p. 97]
[76] See Jensen/Meckling [1976, p. 308]
[77] See Barnea et al. [1981, p. 15], Jensen/Meckling [1976, p. 308], and Swoboda [1982, p. 710]
[78] See Rappaport [1995, pp. 6-7].
[79] See Achleitner/Wichels [2000, p. 7] and Barnea et al. [1981, p. 8]

Table 2.5

Types of Agency Problems in the Shareholder – Management Conflict

Problem	Definition
Effort	Managers have an incentive to exert less effort than the shareholders expect them to.
Asset Use	Managers have an incentive to misuse corporate assets or to consume excessive perks, since they do not bear the full costs of these actions.
Over-Investment	Subform of the asset use problem: Managers execute also unprofitable investments to increase corporate size.
Horizon/Time Preference	Managers tend to have shorter time horizons to achieve investment results than shareholders.
Risk Preference	Managers tend to be more risk averse than shareholders, since more of their wealth is tied up in the ongoing business.

Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 40.

The conflict manifests itself through a set of a different problems listed in Table 2.5. In the case of the *effort problem*, managers optimize their utility by reducing their effort and its direct negative effect. This is assumed to also decrease the performance of the firm and thus the shareholder value. Furthermore, managers might misuse corporate assets, therefore *asset use problem*, or consume excessive perquisites, which harm the company value. A special form of an asset use problem is *over-investment*, where the manager performs unprofitable investments to increase the firm size, as this empire building often has a positive effect on manager's prestige. The *horizon or time preference problem* is based on differing time horizons of management and shareholders. While the shareholder is long-term oriented under the assumption of going concern, the short-term focus of the management stems from the limited duration of its working contracts with the shareholders. Especially shortly before the expiration of the contract, the management might neglect profitable and important long-term investments in favor of short-term results. Finally, the *risk preference problem* accounts for the fact that the manager's personal risk is strongly linked to the firm's risk. His inclination to be risk-averse leads to suboptimal investment decisions that are not in the interest of the risk neutral shareholder.[80]

An equally varied menu of solutions has been proposed to resolve or at least limit these principal-agent problems. For example, Jensen [1986] argued that management prefers to increase firm

[80] See Achleitner/Wichels [2000, p. 7], Barnea et al. [1981, p. 31], Byrd et al. [1998, p. 15-18], and La Porta et al. [2000, p. 4].

size, whereas shareholders are seeking to maximize the value of their shares. Management will attempt to evade shareholder control by financing less profitable projects using internal funds, which are subject to a minimum of external monitoring. Shareholders can prevent management from undertaking unprofitable expansion by reducing this "free" cash flow. This can be done either by increasing the firm's dividend payment or by increasing its leverage. As Hunsaker [1999] points out, an increase in leverage also increases the risk of bankruptcy, and therefore limits management's consumption of perquisites.

Other vehicles for removing shareholder-manager conflicts include the provision of incentive-compatible managerial contracts, and the role of the managerial labor market in exerting discipline on managerial behavior. Shleifer/Vishny [1989] develop a model in which a manager has an incentive to invest the firm's resources in those assets that are more highly valued under that manager than under the next best alternative manager. By this means, the manager counters the disciplinary forces: of the managerial labor market, of product market competition, of the threat of take-over, and of a monitoring board of directors. If successful, managers can demand higher compensation together with greater autonomy. Shleifer/Vishny [1989] show that, when investment projects are irreversible, the firm over-invests in those specific projects whose value is greater under one particular manager than under the next best manager. Such specific projects incur two distinct types of loss: (i) a social cost in relation to investments not being value maximizing, and (ii) a transfer of economic rent from shareholders to managers. This analysis helps explain why managers like growth: growth promotes those areas specific to the manager's skills and provides management benefits through entrenchment. However, Jensen/Meckling [1976], Green [1984], and Smith/Warner [1979] argue that management can still be disciplined by the use of convertible debt. Convertibles reduce the agency costs of monitoring because they give lenders an opportunity to share in a firm's profits. It may be expected that the greater the growth opportunities available to a firm, the greater the probability that management will over-invest. This implies a positive relationship between firm growth opportunities and the level of convertible debt, and a negative relationship between growth and ordinary (long-term) debt.

A more radical solution to shareholder-manager conflicts is proposed by Kensinger/Martin (1986). They argue that, if the firm is reorganized into a limited partnership (or royalty trusts), the managing partner has limited discretion in dividend/re-investment decisions. The reinvestment of profits is in the hands of individual partners (shareholders) which reduce the manager-shareholder agency costs by removing the management's decision-making power.

An alternative approach to analyzing shareholder-manager conflicts uses transactions-cost economics, developed particularly by Williamson [1988]. In this approach, debt and equity are regarded as vehicles for corporate governance rather than as financial instruments;[81] Williamson [1988] argued that the financial structure of a firm is affected by the "specificity" of the different types of assets that it owns. "Specificity" concerns the extent to which assets can be redeployed in different investment projects, with only limited modifications. Evidently, the more specific the asset, the lower will be its liquidation value. In this context, debt acts as a straitjacket for investment opportunities: lenders will not lend to very specific projects since, in the event of failure (liquidation), the amount realized will be very low. Thus, leverage should decrease as the degree of asset specificity rises. Equity-holders are less affected by specificity, since they necessarily surrender the firm's assets to lenders at liquidation. In total, as asset specificity rises, the costs of debt and equity rise, with the costs of debt rising faster than equity. Consequently, highly redeployable assets should be financed by debt whilst equity should be used for highly non-redeployable assets. Williamson [1988] concluded that this argument was at odds with more conventional corporate finance literature, as it suggests that debt is a neutral financial instrument with equity being the instrument of last resort. However, this conclusion was foreshadowed by the pecking order theory of Myers [1984], and Myers/Majluf [1984].

Corporate strategy may also impact on capital structure. Strategy consists of those actions and plans that influence the portfolio of activities in which the firm is involved. It determines in how assets are allocated and the level of debt the firm carries. Most important, the goals of management strategy may conflict with those of shareholders. The relationship between corporate strategy and capital structure is less commonly examined in the mainstream corporate finance literature. Nevertheless, five themes can be identified within the literature that has appeared:

1. The application of applied discounted cash flow techniques to the development of value-based planning models;[82]
2. The relationships among the strategic decisions of a firm, stock market performance and the level of systematic risk;[83]
3. The dependence between stochastic inflation rates and the firm's asset structure, which reflects the firm's strategic decisions;[84]

[81] See, for example, Core, Holthausen/Larcker [1999], Brada/Singh [1999], and Vilasuso/Minkler [2001].
[82] See Hax/Majluf [1984].
[83] See Chang/Thomas [1989].
[84] See Kracaw et al. [1994].

4. The relationship between corporate strategy and the debt-equity ratio;[85] It is argued that the goals, risks, and strength of external monitoring influence the firm's capital structure. Specifically, firms that adopt single and related strategies are the most conservative and are therefore most risk averse while those having unrelated strategies are likely to be least risk averse. This runs counter to standard diversification arguments, and suggests that strategic "focus" implies a lesser willingness to take risks.
5. The relationship between the structure of the firm and the leverage of the firm. Riah-Belkaoui/Bannister [1994], amongst others, assert that a change in a firm's organizational structure will result in a change in its capital structure. They argue that the adaptation of a multi-divisional ("M-form") corporate strategy is associated with an increase in free cash flow. If so, and as noted above, the capital market may force such firms to finance new capital by debt rather than by equity in order to reduce management's misuse of cash [Jensen 1986].

2.6 CONCLUDING REMARKS

Although the issues surrounding the potential effects of ownership and control structures on financial structure and firm performance have been debated for several decades, a consensus has not yet been reached regarding the importance of ownership and control structures. Most importantly, the nature of relationship between ownership and control requires further consideration. In addition, it should include closer examination of the particular characteristics and incentives of the shareholders and managers being considered. It needs to be recognized that the level of equity ownership that equates with 'equity control' is likely to differ from firm to firm and will be dependent on firm-specific factors, including its finance structure. Ownership structure and financing policies are hypothesized to affect performance, which in turn will affect ownership structure and financing policies in later periods. In particular, the use of cross sectional analysis will be unable to fully examine the effects of changes in ownership structure and financing policies. Hence, it is suggested that further research should consider the use of panel data sets to track relationships over time.[86]

In general, ownership measures can be characterized by the two dimensions, there are ownership concentration, giving the quantitative information of share size, and ownership identity, representing qualitative identity information, such as management, board or institutional investors.

[85] See Barton/Gordon [1987, 1988], Lowe et al. [1994] and Krishnaswami, Spindt and Subramaniam [1999].
[86] See Short [1994]

Several aspects distinguish the variables. Shareholding can be defined as direct or cohesive shares and measured at different levels of the control chains. In addition, it can refer to control or cash flow rights. In addition, the identity definition differs, especially in the case of insider ownership, where the inclusion of board shares is questionable. A final aspect is the statistical type of the variables, the differentiation into dummy and metric variables. The ownership measures in early contributions are non-metric variables, which are easy to use, but lose potentially valuable information. Later studies mainly use different forms of metric measures.

Meanwhile, discussing the performance measures common for the ownership literature, accounting-based measures as ROE and ROA have the advantage that they can be applied to non-listed companies, but they have also shortcomings, such as the question of the earnings definition and a potential accounting-bias. Comparing both measures, the ROE is preferable to ROA in ownership studies. The hybrid measures result in the most significant estimates in ownership studies. The M/B avoids the disadvantages of accounting-based measures, but abnormal market returns at the point of observation might distort it. Similar to the ROE versus ROA discussion, the market-to-equity ratio seems advantageous. Apart from the benefits and shortcomings of the M/B, the Tobin's Q may feature a further disadvantage; it is an indirect measure of financial performance. Nevertheless, the proxy error should be low. An advantage of the Tobin's Q over the M/B consists in its frequent use in literature and the higher significance achieved by its results.

At the final aspect, it will be clear that; overall, it is difficult to generalize about corporate capital structures: either within the industrial countries, or within the developing countries, or in comparisons between the two. Depending on the country, the time period, and the data definitions, different studies come to different conclusions. This suggests that the root of the differences in corporate capital structures may lie in the different underlying circumstances faced by individual firms. If firms in the same country all faced exactly the same circumstances and constraints, we would expect to see greater uniformity of results within individual countries. It would appear particularly important therefore to survey the various tests of theories of corporate capital structure, as these theories seek the source of cross-sectional differences among firms in more fundamental differences of circumstance among individual firms: their industry, shareholders, bondholders, managements, and workforce.

CHAPTER 3

OWNERSHIP STRUCTURE AND CAPITAL STRUCTURE: LITERATURE REVIEW AND THE HYPOTHESES

3.1 INTRODUCTION

An appropriate capital structure is a critical decision for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision has on an organization's ability to deal with its competitive environment. Over the last three decades, the literature considering the issue of corporate financial structure has been dominated by the debate arising from the Modigliani/Miller [1958] irrelevance hypothesis, which suggest that, in equilibrium, the financial structure of a firm is independent of, and irrelevant to, its performance and market value. Essentially, a firm should be indifferent as to the use of debt or equity to finance project as, "the average cost of capital to any firm is completely independent of its financial structure and is equal to the capitalization rate of a pure equity stream of its class".[1]

A series of qualifications to this hypothesis have been developed, based on the assumption that firms select financial structures depending on the various costs and benefits associated with debt and equity financing, that is, firms are able to select an optimal financial structure. Such qualifications are concerned with the agency cost arising from the use of debt or equity to finance projects [Jensen/Meckling 1976], the role of debt-bonding in overcoming management discretion [Grossman/Hart 1982, Jensen 1982] and the use of debt to signal information concerning the future prospects of the firm to outsiders [Ross 1977]. Therefore, it is suggested that, in contrast to the Modigliani and Miller hypothesis, firm performance and value is dependent on the financial structure of the firm.

The purpose of this chapter is not to discuss the various theories concerning the optimal financial structure of a firm,[2] but rather to concentrate on those theories and empirical studies which consider the effect of ownership and control structure on financial structure and their subsequent effect on performance that will be discussed separately in Chapter 4. Specially, this chapter will

[1] See Modigliani/Miller [1958, pp. 268-269].
[2] For a review of the recent theoretical work, see Titman/Wessels [1988] and Harris/Raviv [1991].

analyze the question "do different ownership and control structures lead to different retention and financial structure policies which subsequent affect performance?" In particular, this chapter intends to investigate the causal and dynamic aspects of the relation between ownership structure and capital structure of firms in developing countries. The remainder of the chapter is organized around four prominent hypotheses about ownership structure and capital structure. For each hypothesis, the literature on performance and ownership structure has come up with several different empirical evidences or arguments that may explain the relation that is postulated by the particular hypothesis. These arguments are discussed one by one and concluding remarks follow.

3.2 THEORITICAL BACKGROUND OF THE IMPACT OF OWNERSHIP STRUCTURE ON CAPITAL STRUCTURE

The possibility that ownership and control structures can affect financial structures raises several complex issues. Jensen [1986] suggests that Managerial-Controlled (MC) firms are less likely to finance projects externally and it therefore follows that such firms should retain more earnings than Owner-Controlled (OC) firms.[3] Ceteris paribus, debt restricts the discretion of management and increase the threat of bankruptcy.[4] If MC firms are more likely to use internal sources of finance, and as is suggested, such sources are used less efficiently than external sources, it should follow that MC firms perform worse than other forms of control. In support of this hypothesis, managerial theorists suggest that MC firms are more likely to retain earnings than OC firms, as retained earnings represent a source of discretion [Williamson 1964] and provide a source of funds for expansion [Baumol 1967]. Alternatively, Kamerschen [1970] and McEarchern [1975] argue that owner-managed firms will retain more earnings due to the preferential tax treatment of capital gains over dividends and fear of loss control. McEachern [1975] argues further that owner-managers have more discretion in dictating retention policies.

The debate surrounding the choice of capital structure includes an extensive literature which considers the agency cost associated with the debt or equity financing.[5] The seminal paper by Jensen/Meckling [1976] addresses the agency cost associated with external financing. The Jensen/Meckling [1976] model considers a firm which is wholly owned by a single owner-

[3] Jensen [1986] argues that managers prefer to finance projects internally in order to avoid monitoring by the capital markets. Managers have incentives to retain excess cash in the firm as it increases the resources under their control. He develops a free cash flow theory of debt, based on the agency costs associated with the allowing managers to exercise discretion over the use of excess cash retained in the firm. Free cash flow is defined as, "Cash flow in excess of that required to fund all projects that have positive net present value when discounted at the relevant cost of capital".

[4] See Baltagi/Griffin [1989]

[5] See Jensen/Meckling [1976], Haugen/Senbet [1979], Barnea et al. [1985], and Darrough/Stoughton [1986].

manager. In order to finance projects requiring fund in excess of the firm's internal resources, the owner-manager faces two options: to issue equity or to issue debt. The sale of equity to outside investors reduces the owner-manager's fractional interest in the firm, which increases his/her incentives to partake in excessive perk consumption, as the effective cost of such consumption is lowered. However, given assumptions regarding efficient pricing mechanisms which incorporate expectations, outside investors anticipate such actions by the owner-manager. They therefore discount the price they are willing to pay for equity shares to take into account the costs of monitoring the owner-manager and the effects of the divergence of his/her interests from theirs. Hence, the owner-manager bears the full extent of these agency costs of equity.

To avoid such costs, the owner-manager should finance expansion projects with external debt. However, the issuance of debt increases also gives rise to agency costs, which occur as a result of the conflict of interest between the owner-manager and the external lenders. The issuance of debt increases the owner-manager's incentives to invest in high risk projects which offer high returns if successful, but which increase the probability of failure, which conflicts with the interests of the external lenders. In the event of failure, the owner-manager's loss exposure is limited to his equity holding, whilst all gains accrue to him/her if the project is a success. Therefore, whilst the debt holders would bear a proportion of the losses in the event of failure, they are taking on extra risk without the compensatory gains from success. Thus, the equity of a leveraged firm can be seen as a call option on the firm's assets.[6] As a consequence, as the amount of debt increases in proportion to the amount of equity, debt holders demand progressively higher premiums, to compensate for the increased probability of failure. Therefore, the advantage of issuing debt, in the form of a reduction in the agency costs of equity are offset at the margin by the agency costs of debt financing. The Jensen/Meckling model shows that, even in a world characterized by the absence of taxes and bankruptcy costs, there will be an optimum level of debt which minimizes the sum of the total agency costs.

The Jensen/Meckling model therefore suggests that the fraction of equity held in firm by the owner-manager affects the magnitude of the agency costs of equity financing due to the affect on his/her incentives to partake in excessive perk consumption. However, the issuance of debt also gives rise to agency costs. Hence the advantage of issuing debt, in the form of reduced costs of equity, is offset at the margin by the agency costs of debt. Kim/Sorenson [1986] suggest that leverage may be positively related to managerial ownership due to differences in the agency costs of debt and equity facing firms with high management ownership and those with low

[6] Black/Scholes [1973].

management ownership. They advance three possible reasons for this proposition. Firstly, it is suggested that firm with high inside ownership may face higher agency costs of equity and may therefore issue debt in order to avoid these agency costs of equity. Secondly, firms with high inside ownership may issue more debt because the agency costs of debt decline as ownership concentration increases. Finally, Kim/Sorenson [1986] suggest that firms with high inside ownership may issue debt above the optimal level in order to maintain control of the firm, irrespective of the agency costs associated with debt and equity.

The debate surrounding the incentives faced by managers, shareholders and owner-managers with regard to debt levels has produced several conflicting theories. Grossman/Hart [1982] argue that managers increase the level of debt in their firms in order to pre-commit or bond themselves to achieving the level of cash flow necessary to meet the debt repayments. This argument therefore suggests that debt is used to resolve conflicts between (non-owning) managers and shareholders. Such bonding reduces management discretion to consume excessively perquisites, and hence should increase the value of the firm's equity.[7] As a consequence, the agency costs of additional equity should decrease, as outsiders will perceive that managers have committed themselves to reduced shirking, an argument consistent with Ross's [1977] model in which managers use debt levels as a signal of firm quality. However Jensen's [1986] free cash flow arguments suggest that managers prefer lower debt levels in order to allow themselves greater discretion over the use of free cash flow and to avoid the threat of bankruptcy. Taken together, these arguments suggest that whilst managers may prefer to have lower levels of debt, they use increased debt levels to signal to debt holders and shareholders their commitment not to take actions that will reduce the value of the firm and increase the probability of bankruptcy.

External shareholders who are well diversified would be expected to prefer debt levels higher than those sought by managers, as up to the optimal level, debt increases the value of equity. However, with regard to owner-managers preferences, the situation is more complicated. The Grossman/Hart [1982] model considers a situation in which management do not own any equity shares in the firm. As management ownership in a firm increases, owner-managers should find it less necessary to signal to outside shareholders via increased debt levels as, according to Jensen/Meckling [1976], owner-managers' and external shareholders' incentives should be aligned by high managerial ownership. However, as increased debt increases the value of the firm's equity, owner-managers will benefit from increased debt levels by virtue of the increased value of the equity shares in the firm. Conversely, it may be argued that high levels of

[7] See Jensen/Meckling [1976] and Grossman/Hart [1982]

management ownership make it difficult for outsiders to discipline such owner-managers and hence management discretion may increase as management ownership increases. Friend/Lang [1988] contend that there is a greater incentive for owner-managers rather than for other shareholders to maintain a low debt ratio in order to avoid the possibility of bankruptcy as they face higher risks and are relatively undiversified. As the risk of bankruptcy increases as debt increases, owner-managers in particular are likely to become increasingly risk averse as their holdings in the firm increase. Friend/Lang [1988] argue that the higher the ownership, the greater the ability and desire for such owner-managers to adjust debt ratios (downwards) to suit their own interests. Hence owner-managers would be expected to prefer debt levels below those preferred by well diversified external shareholders.

However, there are several arguments which suggest that the presence of large external shareholders may affect the ability of managers to adjust debt levels to suit their own objectives. With reference to non owner-managers, Zeckhauser/Pound [1990] argue that large external shareholders, by acting as monitors, may help to solve some of the agency costs of debt financing which arise between managers and debt holders. It is suggested that firms with large shareholders should have lower costs of debt which in turn implies that debt ratios should be higher for firms with large external shareholders. However, they argue that large shareholders will only perform such a role if they have the right incentives; without incentives they may compete against debt holders. Taking an alternative perspective, Zeckhauser/Pound [1990] further argue that the presence of large external shareholders may act as a signal to the market that managers are less able to indulge in profit reducing behavior and may mitigate the need for managers to use debt as a signal. Hence, the presence of large external shareholders should be associated with lower debt ratios. With regard to owner-managers, Friend/Lang [1988] contend that the presence of large external shareholders may prevent owner-managers from adjusting debt ratios to suit their own interests and hence firms with large external shareholders would be expected to have higher debt ratios than firms without such shareholders.

In summary, there are many conflicting theories and opposing arguments relating to the effect of ownership and control structure on financial structure. As will be discussed in the following sub-section, the empirical evidence on these issues is limited and there are many issues that will be the hypotheses in this investigation.

3.3 EMPIRICAL EVIDENCE OF THE IMPACT OF OWNERSHIP STRUCTURE ON CAPITAL STRUCTURE

The empirical studies of the effect of ownership on the financial structure of the firm fall into one of two groups. The first group of studies investigates the effect of control type on the retention policies of the firm. The second group of studies consists of those which examine the effect either of management shareholdings on debt ratios or the effect of large external shareholders on management incentives with regard to the debt ratio.

In the previous sub-section, it was noted that MC firms are hypothesized to be more likely to retain earnings than OC firms. However, the empirical evidence regarding this issue is inconclusive. Kamerschen [1970], Sorenson [1974], Holl [1975] and Ware [1975] found MC firms to have higher dividend payout ratios than OC firms, although the results reported by Sorenson [1974] and Holl [1975] were not significant. McEachern [1975] found owner-managed firms to retain significantly more earnings than externally controlled or MC firms, with no significant differences being found to exist between the latter two categories. However, as argued previous researches, such studies are fraught with difficulties due to the definitions of control type employed, and hence it is difficult to draw any firm conclusions from them.

The second, more recent group of studies examines the effect either of management shareholdings on debt ratios or the effect of large external shareholders on management incentives with regard to the debt ratio. The main studies in this area are summarized in Table 3.1. Whilst the empirical research in this area is limited, the majority of the studies do find support for the hypothesis that leverage is positively related to management ownership.[8] In contrast, Friend/Lang [1988] contend that their results suggest that a negative relationship exists between leverage and management ownership. However, as will be discussed below, these results are open to some doubt. With regard to the impact of large external shareholders on debt ratios, the results of Friend/Lang [1988] suggest that the presence of large external shareholders is associated with higher debt ratios. In contrast, Zeckhauser/Pound [1990] found no significant differences to exist in the debt ratios of firms with large external shareholders as compared to firms without such shareholders, although, on average, large shareholders were associated with lower debt ratios.

[8] See Kim/Sorenson [1986], Agrawal/Mandelker [1987] and Amihud et al. [1990]

Table 3.1

Effect of Ownership and Control on Capital Structure – A Summary of the Empirical Findings

Author(s)	Period and Sample	Dependent Variables	Results
Kim/Sorenson [1986]	1970 – 1980 84 insider and 84 outsider US firms matched by industry	Ratio of long-term debt to total capitalization	Insider firm have on average, 5.7% significantly higher debt ratios that outsider firms, ceteris paribus.
Agrawal/Mendelker [1987]	1974 – 1982 153 acquiring firms and 56 divesting firms involved in sell-offs	Change in variance of stock returns (post-investment announcement compared with pre-investment) Ratio of book value of long-term debt + preferred stock to book value of long-term debt + preferred stock + market value of equity.	Ratio of value of stock and ratio of stock owned (mostly) significantly higher in firms that select investments resulting in variance increases than in those with variance decreases. Firms that increase their debt/equity ratio after the acquisition/sell-off have significantly higher ratio of value of stock and ratio of stock owned for the top manager and top two managers than firms that decrease their debt/equity ratio.
Friend/Lang [1988]	1974 – 1983 984 US firms (cut-off point of 13.85% management ownership used to separate sample into two equal size groups of 'publicly held' and 'closely held' firms)	Debt/asset ratio defined on a book-value basis and excluding trade credit and short term accruals	Closely held company with share > 13.85% owned by officers/directors and > 10% owned by non-managerial shareholders has higher average debt ratios than closely held company share with < 10% owned by non-managerial shareholders. For closely held and public-held company with > 13.85% owned by officers/directors and > 10% owned by non-managerial shareholders, debt is negatively related to management shareholdings. For public-held company with < 13.85% owned by officers/directors and < 10% owned by non-managerial shareholders, debt is positively related to management shareholdings.

Table 3.1 (Continued)

Effect of Ownership and Control on Capital Structure – A Summary of the Empirical Findings

Holderness/Sheehan [1988]	1979 – 1984 101 majorities held and 101 diffusely held US firms, matched by industry and size.	Capital expenditure, advertising expenditure, research and development expenditure	Majority held firms have larger average expenditures than diffusely held firms do, but differences are not significant.
Amihud et al. [1990]	1981 – 1983 165 acquiring US firms	Method of payment for acquired firm: cash/notes or stock exchange	Cash financed acquisitions associated with significantly larger inside ownership than stock financed acquisitions.
Zeckhauser/Pound [1990]	1988 – 1989 286 US firms drawn from 22 industries, 11 industries classified as being open information structure industries and 11 as being closed information structure industries, based in the ratio of R&D to sales (proxying for asset specificity)	Book value of total debt/book value of total debt plus market value of equity.	No significant difference between firms with large shareholders and those without for both open information and closed information structure industries (but, on average, large shareholders are associated with lower debt ratios)
Brailsford et al. [2002]	1989 – 1995 216 Australian companies: (a) with the share ownership of the top two, top five, and top 20 largest shareholders, (b) the share ownership of the top two, top five, and all directors.	Debt-equity-ratio as the ratio of the book value of debt to the market value of equity.	The level of external block ownership is positively related to leverage. The relation between external block ownership and leverage varies across the level of managerial share ownership.

The conflicting results of Kim/Sorenson [1986] and Friend/Lang [1988] warrant further discussion as both papers attempt to analyze the relationship between management ownership and debt ratios by considering the normal activities of the firm, whereas Agrawal/Mandelker [1987] and Amihud et al. [1990] consider the relationship after certain investment decisions, acquisitions and divestures, have taken place. Kim/Sorenson [1986] investigated the proposition that the ownership structure of the firm may influence its financial structure as a result of the difference in agency costs of debt and equity between firms with high managerial ownership and firms with low managerial ownership. Using a dummy variable to denote high/low managerial ownership and a cut-off point of 25% of equity to define high managerial ownership and 5% of equity to define low managerial ownership, they found the debt ratio to be positively correlated with the extent of managerial equity ownership. Firms with high managerial ownership were found to have on average 5.7% higher debt to equity ratios than firms with low managerial ownership.

In contrast to the findings of Kim/Sorenson [1986], Friend/Lang [1988] reported debt ratios to be negatively related to management shareholdings. Firms were classified as being either 'closely held' or 'publicly held' depending on the fraction of stock owned by management, with a cut-off point of 13.825% of management ownership used to separate the sample into two equal size groups. It was hypothesized that managers of closely held firms would face higher firm-specific risks but would have less constraints on their behavior than managers of publicly held firms. Consequently, closely held firms would be able to maintain a lower debt ratio than publicly held firms. However, the presence of large non-managerial shareholders may constrain the behavior of management, even in closely held firms. Therefore, the samples of closely held firms and publicly held firms were further subdivided, depending on the existence of a non-managerial shareholder with holdings of 10% or more. Friend/Lang [1988] reported that the debt ratios were higher for firms which had principal non-managerial shareholders for both closely held and publicly held firms. For closely held firms, the level of debt decreased as the level of managerial shareholding in the firm increased, a finding that was independent of the presence of large non-managerial shareholders. However, this was only true for publicly held firms with a principal non-managerial shareholder; for other publicly held firms, the debt ratio increased as the fraction of stock held by insiders increased. Such findings are consistent with the results reported by Agrawal/Nagarajan [1990], who found managers of all-equity firms to have significantly larger percentage of shareholdings than managers of leveraged firms.

However, the findings of Friend/Lang [1988] need qualification. Examination of summary statistics provided by this investigation [Friend/Lang, 1988 Table 1, p. 276] reveals that the mean

debt ratio of all closely held firms (0.248) is higher than that of all publicly held firms (0.226), which is consistent with the findings of Kim/Sorenson [1986]. However, the cut-off points used to classify firms as closely held/high inside ownership differ between the two studies considerably. Friend/Lang [1988] run separate regressions on each of the four classifications of firms, in contrast to the dummy variable employed by Kim/Sorenson [1986]. The explanatory variable employed in the Friend/Lang [1988] regressions measures the fraction of equity held by the largest dominant managerial insider, although they do note that similar results were obtained when the holdings of all insiders in each firm were combined. Therefore, the results of both Kim/Sorenson [1986] and Friend/Lang [1988] do suggest that firms in which inside ownership is high have higher debt ratios than those firms in which inside ownership is low, and Friend/Lang's analysis suggests that the presence of large external shareholders limits management discretion in seeking lower debt ratios (although the results of Zeckhauser/Pound [1990] dispute this). However, given the difficulties in comparing the results of the two studies, further work analyzing the impact of management ownership on debt/equity ratios is warranted.

In summary, the empirical evidence which considers the effect of ownership on financial structure is inconclusive. Once again, one of the main problems is the use of arbitrary cut-off points to assign firms to various control categories and hence these studies are subject to the limitations discussed in previous investigations.

3.4 RESEARCH HYPOTHESES

The aim of this research is to test the effect of ownership structure into capital structure and firm performance. The previous researches give evidences that construct some hypotheses below:

- **External Block Ownership and Capital Structure**

The literature concerning the role of block shareholders strongly suggests that external block holders have incentives to monitor and influence management appropriately to protect their significant investments.[9] Due to their large economic stake, these investors have a strong desire to watch over management closely, making sure that management does not engage in activities that are detrimental to the wealth of shareholders. According to this 'active monitoring hypothesis', external block holders reduce the scope of managerial opportunism, which result in

[9] See Friend/Lang [1988]

lower direct agency conflicts between management and shareholders.[10] Shome/Singh [1995] obtain evidence that is consistent with the active monitoring hypothesis. They examine the market reaction to the announcement of acquisitions of large share parcels using event study methodology. Shome/Singh [1995] report significant positive abnormal returns associated with announcements of block acquisitions by external shareholders. Moreover, they show that the abnormal returns are positively associated with a reduction in agency costs (through proxy variables). Furthermore, Bethel et al. [1998] find that long term operating performance of firms improves subsequent to the acquisition of a block by activist shareholders.

This above evidence is consistent with the reduction in agency conflicts when there are increases in external block holdings. Consequently, if external block holders serve as active monitors and closely monitor the actions of corporate managers, management may not be able to adjust the debt ratio to their own interests as freely if such investors do not exist.

Since the economic stake of block holder's increase as their share ownership rises, the incentives of block holders to protect their investments and consequently monitor management can be expected to increase with the level of their share ownership. Moreover, as the share ownership of external block holders increase, their voting power and influence increase, giving them greater ability to control the actions of managers. As corporate debt acts as an internal control on management it is proposed here that corporate debt ratios are likely to be an increasing function of the level of share ownership of external block holders.

This leads to the first hypothesis:

H_1: Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus.

Shleifer/Vishny's [1986] active monitoring hypothesis, however, has been challenged by Pound [1988] who argues that large shareholders may be passive voters who collude with corporate insiders against the best interests of dispersed shareholders. Evidence consistent with this 'passive voters hypothesis' is presented by McConnell/Servaes [1990] in relation to large shareholders and firm value. If this hypothesis more accurately describes the organizational role of external block holders, corporate leverage may be negatively related to the share ownership of such block holders. This thesis therefore can also be seen as conducting an empirical test of two

[10] See Shleifer/Vishny [1986].

opposing hypotheses concerning the role that external block holders play in influencing corporate capital structure.

- **Managerial Share Ownership and Financing Decision**

Jensen/Meckling [1976], Fama/Jensen [1983] and Shleifer/Vishny [1986], among others, have suggested that the structure of equity ownership has an important effect on managerial incentives and firm value. The literature initially assumes that most investors will prefer to invest in a well-diversified portfolio to minimize portfolio risk. Since the liabilities of a firm's shareholders are limited to their share ownership, risks can be diversified with other investments. However, corporate managers are unable to achieve the same minimum level of aggregate risk as a large proportion of their wealth is derived from the significant investment in human capital specific to the firm. Unlike financial capital, the risks associated with human capital are largely un-diversifiable.[11] These non-diversifiable risks result in a welfare reduction.[12] This loss of diversification is particularly costly to corporate managers due to their personal wealth constraints.

Since risk-averse managers bear an unavoidable burden of risk linked to the fortunes of the firm employing them, managerial self-interest advocates argue that once presented with opportunities, managers have incentives to lower the non-diversifiable employment risks by ensuring the continued viability of the firm.[13] This is known as the "managerial self-interests hypothesis".

One technique for reducing non-diversifiable employment risk is by decreasing the firms' debt holdings.[14] This is because debt increases the bankruptcy risks of a firm. Since the occurrence of bankruptcy or financial distress will result in loss of employment, potential impairment of future employment and potentially lower earnings capacity of managers, it is argued that self-interested managers have incentives to reduce corporate debt to a level that is less than optimal. However, it is unlikely that management can reduce the debt level to zero due to the existence of corporate governance mechanisms to discipline and control their behavior. Such mechanisms include the managerial labor market, capital market and market for corporate control.

[11] See Amihud/Lev [1981]
[12] See Crutchley/Hansen [1989]
[13] See Amihud /Lev [1981]
[14] See Friend/Lang [1988]

For instance, Fama/Jensen [1983] argue that stock prices are visible signs that summaries the implications of decisions about future net cash flows. This external governance device exerts pressure to orient a firm's decision process toward the interests of shareholders. The market for corporate control has been suggested as one of the most effective corporate governance mechanisms.[15] If managers are not maximizing the value of the firm, then any party could, in theory, purchase the firm, change the financing policy to a value maximizing one, and reap the resulting increase in value. Weisbach [1993] suggests that the main reason for a hostile takeover is to replace managers who are not maximizing shareholder wealth. However, impediments in the market for corporate control are recognized. Prowse [1994], among others, suggest that takeovers may only be important in correcting the most serious cases of managerial laziness, incompetence, or self-interest behavior. Further, while the managerial labor market may be sufficient to eliminate the incentive problems in perfect market conditions, market imperfections may cause it to be less than perfect. Morck et al. [1988] argue that when managers hold a large proportion of the firm's shares, they generally have enough voting power, or influence, to guarantee their current employment and remuneration with the firm.

Corporate debt policy has also been viewed as an internal control mechanism, which can reduce agency conflicts between management and shareholders, particularly the agency costs of free cash flow as suggested by Jensen [1986]. Jensen argues that managers with substantial amounts of free cash flow are more likely to engage in non-optimal activities. Grossman/Hart [1980] suggest that debt is a disciplinary device that can be used to reduce the agency costs of free cash flow. Specifically, the obligations associated with debt reduce management's discretionary control over the firm's free cash flow and their incentives to engage in non-optimal activities. However as Myers [1977] demonstrates, debt can also have undesirable effects such as inducing managers to forego positive net present value projects.

Jensen/Meckling [1976] argue that managerial share ownership can reduce managerial incentives to consume perquisites, expropriate shareholders' wealth and to engage in other non-maximizing behavior and thereby helps in aligning the interests between management and shareholders. This is the 'convergence-of-interests' hypothesis.

The convergence of interest hypothesis has been challenged by Fama/Jensen [1983] and Demsetz [1983] who suggest that managerial share ownership may have adverse effects on agency conflicts between management and shareholders due to the costs of significant

[15] See Manne [1965]

managerial share ownership. They argue that instead of reducing managerial incentive problems, managerial share ownership may entrench the incumbent management team, leading to an increase in managerial opportunism.

The combination of the convergence of interests and entrenchment hypotheses suggest a curvilinear relationship between managerial share ownership and corporate value. Studies such as Morck et al. [1988], McConnell/Servaes [1990] and McConnell/Servaes [1995] find a non-linear relationship between managerial share ownership and firm value. These studies suggest that at low levels of managerial share ownership, managerial share ownership increases firm value due to the convergence-of-interests effect. However, when the level of management ownership is high, entrenchment sets in, leading to higher agency conflicts and a consequent decline in the value of the firm. Morck et al. [1988] using US data find a positive relation between management ownership and firm value (as measured by Tobin's Q) in the 0% to 5% ownership range and beyond the 25% ownership range. McConnell/Servaes [1990], also using US data, find a positive relation between managerial share ownership and firm value but in the management ownership range of 0% to 40- 50%.

Short/Keasey [1999] provide support for the curvilinear effects but find that management in the United Kingdom become entrenched at higher levels of ownership than their United States counterparts. Kole [1995] argues that the variation in results in the United States may be driven by a size effect whereas Short/Keasey [1999] argue that governance mechanisms in the different countries may be a contributing factor in explaining the differences. Despite the possible connection between managerial share ownership and external block ownership in mitigating agency conflicts, prior studies have generally only examined the effect of either managerial share ownership or external block ownership on agency conflicts (and firm value) separately.

The above evidence demonstrates a link between managerial share ownership and firm value. Despite the irrelevance theory of Modigliani/Miller's [1958], the existence of market imperfections suggest a link between capital structure and firm value. Indeed, numerous studies confirm such a link. For instance, McConnell/Servaes [1995] provide evidence that for firms with few growth opportunities; firm value (as measured by Tobin's Q) is positively correlated with leverage and for firms with high growth opportunities Q is negatively correlated with leverage. Hence, it is reasonable to argue that a link also exists between managerial share ownership and capital structure.

The convergence of interests and entrenchment hypotheses can be applied to other agency conflicts between managers and shareholders. Berger et al. [1997] in a study of CEO compensation and firm debt levels find that entrenched managers seek to avoid debt. This implies that the financing decisions of the firm may be influenced by the share ownership of corporate managers. Empirical support for the general notion that the capital structure decision is agency related is also provided by Johnson [1997] who reports that monitoring effects are influential in the debt decision and in the decision between public and private debt sources.

Using the rationale behind the convergence-of-interests and entrenchment hypotheses, this thesis argues that the relationship between managerial share ownership and debt ratio may also be curvilinear. Specifically, at low levels of managerial share ownership, managerial share ownership is likely to align management and shareholder interests, leading to increased debt levels. However, when managers already hold a significant portion of the firm's equity, an increase in managerial share ownership may lead to managerial entrenchment. In general, when the level of managerial share ownership is "too high," there will be few constraints on managerial behavior, leading to an increase in managerial opportunism and decreased debt levels. Thus, it is predicted that the relationship between managerial share ownership and agency conflicts is curvilinear with the effects of managerial opportunism first decreasing, and then increasing as managerial share ownership rises.

This leads to the second hypothesis:

H_2: At low levels of managerial share ownership, managerial share ownership is positively related to a firm's debt ratio, ceteris paribus, and at high levels of managerial share ownership, managerial share ownership is negatively related to a firm's debt ratio, ceteris paribus, such that the expected relationship between management ownership and the leverage ratio is curvilinear.

Friend/Lang [1988] test the effect of non-managerial block holders on leverage and find that the presence of such shareholders increases the debt level. They define non-managerial block holders as investors who hold more than 10% or more of the firm's outstanding shares. However, in their analysis, the level of managerial share ownership does not play a role. Their analysis makes no direct predictions as to whether the relationship between external block ownership and the debt ratio varies with the level of managerial share ownership. No study has attempted to investigate the relationship between external block ownership, managerial share

ownership and debt levels simultaneously. A possible exception is McConnell/Servaes [1995] who include institutional ownership, managerial share ownership and leverage in the one model but their focus is on firm value and not leverage per se.

It is argued here that at low levels of managerial share ownership, external block ownership plays a significant role in monitoring the behavior of management, resulting in lower managerial opportunism. With low levels of managerial share ownership managers have limited voting power and influence, while external block holders have the ability to monitor and restrict managerial opportunistic behavior, therefore mitigating agency conflicts. Consequently, both external block ownership and managerial share ownership have a positive effect on the managerial incentive problems. In particular, both factors are hypothesized to be able to reduce managerial opportunistic behavior, such that external block ownership has a complementary effect at low levels of managerial share ownership.

This leads to the third hypothesis:

H_3: At low levels of managerial share ownership, the level of external block ownership is positively related to the firm's debt ratio, ceteris paribus.

At high levels of managerial share ownership, the monitoring effect of external block ownership is offset by the entrenchment effect arising from high managerial share ownership. Thus, the effectiveness of external block ownership on managerial opportunism may be significantly reduced. With managers having effective control, external block holders may not have the ability to prevent self-interested managers from indulging in non-maximizing behavior. As a result, external block ownership and managerial share ownership work in opposite directions at high levels of managerial share ownership.

If the entrenchment effect of managerial share ownership exceeds the monitoring effect of external block ownership, the significance of the relationship between external block ownership and leverage will be reduced. The extent of the reduction depends on the magnitude of the entrenchment effect. At the extreme, if the entrenchment effect dominates the monitoring effect, the relationship between external block ownership and leverage will be ineffective. Due to the confounding influences, it is not possible, a priori, to predict the specific relationship between external block ownership and leverage at high levels of managerial share ownership. However, what is known is that the relationship between external block ownership and leverage at high

levels of managerial share ownership will not be as significant as compared to low levels of managerial share ownership.

This leads to the fourth hypothesis:

H_4: At high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is less significant than at low levels of managerial share ownership, ceteris paribus.

As the consequence of time frame choice, the likelihood of different research findings in this thesis from previous research is unavoidable. The referenced researches are studies that are mostly conducted with the data and context pre-crisis period. Intuitively, it is believed to be very different after the crisis period. For example, in Nigel et al.'s [2005] investigation that analyzes the effect of ownership concentration on leverage in Korea and Indonesia in pre-Asian crisis, it is found that the effect of concentration on leverage is positive and significant in both countries. There is also some evidence of entrenchment effects in that ownership concentration >50% has a positive effect on leverage in Korea (but not in Indonesia). However, in this thesis the research time period is concentrated on the year 2000 - 2001. Hoping with this time frame there are many aspects that are able to reveal the effect of the crisis and it will eliminate problems that are probable to disturb the essence of this thesis.

3.5 CONCLUDING REMARKS

This chapter discusses four hypotheses about ownership structure and firm performance. These hypotheses and their associated arguments are summarized below in Table 3.2. This investigation contributes to this area of research by:

(a) Investigating whether the structure of equity ownership can help explain cross-sectional variation in capital structure,

(b) Since corporate managers and external block holders are two groups of shareholders who have an influence on decisions concerning the allocation of the firm's resources, the research focuses on the effects of managerial share ownership and external block ownership on managerial incentives and consequently on the leverage ratio,

(c) Moreover, despite the widespread interest in the way firms make their financing decisions, most of the capital structure research has been conducted in the United States. There is limited evidence outside the United States. Therefore, this research will

be one of extended efforts to investigate this topic in East Asian corporations in term of post-crisis analysis.

In order to achieve the research objective, this thesis uses an agency framework to develop several testable hypotheses, as follows:

(a) First, the external block ownership model identifies the effect of external block ownership on managers' incentives to reduce their non-diversifiable employment risks and adjust the corporate debt ratio. In prior researches, external block ownership has traditionally been defined as the share ownership by large non-managerial investors.

(b) Second, the managerial share ownership model looks at the effect of management ownership on the level of debt.

(c) Third, the research develops a model that incorporates the effects of both external block ownership and managerial share ownership on the corporate financing decision.

Table 3.2

The hypotheses of the Effect of Ownership structure on Capital Structure

Hypothesis	Theory or argument	Causality
Hypothesis 1: Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus.	• Shleifer and Vishny (1986) • Friend and Lang (1988) • Pound (1988) • McConnell and Servaes (1990) • Shome and Singh (1995) • Bethel et al (1998)	(D/E) = f (external block ownership)
Hypothesis 2: At low levels of managerial share ownership, managerial share ownership is positively related to a firm's debt ratio, ceteris paribus, and at high levels of managerial share ownership, managerial share ownership is negatively related to a firm's debt ratio, ceteris paribus, such that the expected relationship between management ownership and the leverage-ratio is curvilinear.	• (Amihud and Lev, 1981) • Jensen and Meckling (1976) • Fama and Jensen (1983) • Demsetz (1983) • Shleifer and Vishny (1986) • Friend and Lang (1988) • Crutchley and Hansen (1989) • Weisbach (1993) • Prowse (1994) • Short and Keasey (1999)	(D/E) = f (managerial share ownership)
Hypothesis 3: At low levels of managerial share ownership, the level of external block ownership is positively related to the firm's debt ratio, ceteris paribus.	• Friend and Lang (1988) • McConnell and Servaes (1990) • Brailsford et al (2002)	(D/E) = f (external block ownership, managerial share ownership)
Hypothesis 4: At high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is less significant than at low levels of managerial share ownership, ceteris paribus.	• Friend and Lang (1988) • McConnell and Servaes (1990) • Brailsford et al (2002)	(D/E) = f (external block ownership, managerial share ownership)

CHAPTER 4

CAPITAL STRUCTURE AND FIRM PERFOMANCE: LITERATURE REVIEW AND THE HYPOTHESES

4.1 INTRODUCTION

The topic of optimal capital structure has been the subject of many studies. It has been argued that profitable firms were less likely to depend on debt in their capital structure than less profitable ones. It has also been argued that firms with a high growth rate have a high debt to equity ratio. Bankruptcy costs (proxied by firm size) were also found to be an important effect on capital structure.[1] If these three factors are considered as determinants of capital structure, then these factors could be used to determine the firm's performance. In practice, firm managers who are able to identify the optimal capital structure are rewarded by minimizing a firm's cost of finance, thereby maximizing the firm's revenue. If a firm's capital structure influences a firm's performance, then it is reasonable to expect that the firm's capital structure would affect the firm's health and its likelihood of default.

On the other side, theory suggests that the choice of capital structure may help mitigate these agency costs. Under the agency costs hypothesis, high leverage or a low equity/asset ratio reduces the agency costs of outside equity and increases firm value by constraining or encouraging managers to act more in the interests of shareholders. Since the seminal paper by Jensen/Meckling [1976], a vast literature on such agency-theoretic explanations of capital structure has developed.[2] Greater financial leverage may affect managers and reduce agency costs through the threat of liquidation, which causes personal losses to managers of salaries, reputation, perquisites, etc.,[3] and through pressure to generate cash flow to pay interest expenses.[4] Higher leverage can mitigate conflicts between shareholders and managers

[1] See Kraus/Litzenberger [1973]; Harris/Raviv [1991]
[2] See Harris/Raviv [1991] and Myers [2001] for review.
[3] For example Grossman/Hart [1982], Williams [1987]
[4] See Jensen [1986]

concerning the choice of investment,[5] the amount of risk to undertake,[6] the conditions under which the firm is liquidated,[7] and dividend policy.[8]

A common testable prediction of this class of models that is vastly found in prior studies is that increasing the leverage ratio should result in lower agency costs of outside equity and improved firm performance, all else held equal. However, when leverage becomes relatively high, further increases generate significant agency costs of outside debt – including higher expected costs of bankruptcy or financial distress – arising from conflicts between bondholders and shareholders.

The purpose of this chapter is predominantly to take a closer look on the concepts and theories of capital structure and firm performance. This chapter has a closed relation to Chapter 5 that discusses the relationship between ownership structure and performance. The survey here is to analyze the possibility of non-monotonic and endogeneity relationship of capital structure and firm performance. Another objective is to emphasize the features of the theories that are relevant in connection with empirical testing. In particular, the causal and dynamic aspects of the theories are accentuated. The prior researches generally do not take into account the possibility of reverse causation from performance to capital structure. If firm performance affects the choice of capital structure, then failure to consider this reverse causality may result in simultaneous-equations bias. That is, regressions of firm performance on a measure of leverage may confound the effects of capital structure on performance with the effects of performance on capital structure. Therefore, the remainder of the chapter is organized around two prominent hypotheses about capital structure and firm performance. For each hypothesis, the literature on performance and ownership structure has come up with several different empirical evidences or arguments that may explain the relation that is postulated by the particular hypothesis. These arguments are discussed one by one and concluding remarks follow.

4.2 CAPITAL STRUCTURE AND PERFORMANCE

A large body of literature has evolved to deal with cases where the Modigliani-Miller [1958] results may not apply. Shareholders may not be able to undertake the same financial transactions as firms and at the same price,[9] or face credit constraints.[10] The idea of the debt tax

[5] See Myers [1977]
[6] See Jensen/Meckling [1976], Williams [1987]
[7] See Harris/Raviv [1990]
[8] See Stulz [1990]
[9] See Duffie [1987]
[10] See Stiglitz [1988]

shield has also been influential in altering the applicability of the original MM model.[11] Another major strand of literature, however, has evolved which suggests that leverage has a non-neutral impact on firms' behavior and performance, irrespective of whether or not arbitrage is possible, thus leading to the generation of greater or lesser cash flows than if a firm were to be fully equity financed.

In the alternative strand of literature, four ideas are relevant. The first is the incentive signaling approach. If two firms have differing prospects, which are known by management but not discerned by investors, debt can be used to signal the fact that prospects differ and equity issues may be interpreted as a negative signal.[12] Ross [1977] argues that a firm with better prospects can issue more debt than one with lower prospects, because the issue of debt by the latter will result in a higher probability of bankruptcy because of debt-servicing costs, which is a costly outcome to management. Therefore, a higher level of debt will be associated with a higher level of performance.

The second idea, one of resource constraints, is advanced by Jensen/Meckling [1976]. In the situation where an entrepreneur has limited resources, then should capital be raised as equity or debt becomes an issue. The placement of equity dilutes an owner-manager's share of profits, and thereby entrepreneurial incentives, motivating on-the-job consumption. Raising debt avoids the sacrifice of incentive intensity since the entrepreneur can internalize to a greater degree the benefits of superior profitability. Therefore, more highly leveraged firms will be more profitable, since the entrepreneur or owner-manager will not have undertaken on-the-job consumption.

As Williamson [1988] contends, however, the modern corporation with no single owner-manager, with diverse ownership, and there is separation of ownership and control, is more ubiquitous in the contemporary industrial landscape. Therefore, the role that debt plays in influencing corporate performance when it is a part of the capital structure of a large corporation, an organizational form seen also in the Indian context, is more germane. The relevant idea with which to address it is one of bonding.[13] The behavioral assumption underlying the idea of bonding is one of managerialism,[14] and the bonding idea combines ideas of both incentive signaling and resource constraint.

[11] See Modigliani/Miller [1963]; Miller [1977]
[12] See Greenwald, Stiglitz and Weiss [1984]; Leland/Pyle [1977]; Myers/Majluf [1984]
[13] See Grossman/Hart [1986]; Jensen [1986]
[14] See Marris [1964]

Assuming that management owns little equity, as a result of which a switch from debt finance to equity finance does not change managements' benefit from an increase in profit directly, the incentive effect of debt is to avoid bankruptcy, because the calling-in of a loan can quite easily upset the liquidity position of a firm and jeopardize growth possibilities.[15] Grossman/Hart [1986] and Jensen [1986] assume managerial discretionary behavior and debt serves both as a signal as well as a check on managerial discretion. The issuance of debt, a fact that is easily observed, permits the market to make inferences about a firm's strategies, the quality of projects and its likely performance, and these influences are reflected in the market's valuation of a firm. Since the seeking of external funding exposes firms' strategies to scrutiny, managers are exposed to increased monitoring which inhibits their engagement in discretionary behavior and the threat of default also elicits greater managerial effort.[16]

A firm may issue debt to persuade the market that the management will pursue profits, which will generate the necessary cash so as to service the debt, rather than indulge in managerial discretionary behavior. By issuing debt, management, as agent, deliberately changes its incentive structure so as to bring it in line with those of shareholders, the principals, because of the resulting impact on market value; or, in other words, management bonds itself to act in the best interest of its shareholders. Hence, higher levels of debt in the firm's capital structure will be directly associated with higher performance levels.[17] The principal hypothesis prevalent in the literature is that a higher level of debt in a firm's capital structure is associated with a higher level of performance, leading to the generation of greater cash flows.

An alternative hypothesis, however, also exists in which states that high leverage is associated with long-term performance declines. Debt holders are assumed to be more risk averse than equity holders.[18] Consequently, they force managers to abandon risky projects and cut back on R&D expenditures. There is evidence suggesting that a negative relationship exists between R&D intensity and long-term debts.[19] Leverage is, therefore, associated with decline in firms' innovativeness and the long-run consequence of such decline in innovativeness is a worsening of performance.

[15] See Baxter [1967]
[16] See Jensen [1986]
[17] See Grossman/Hart [1986]
[18] See Smith/Warner [1979]
[19] See Baysinger/Hoskisson [1989]

4.3 THEORIES OF REVERSE CAUSALITY FROM PERFORMANCE TO CAPITAL STRUCTURE

As noted, prior researches on agency costs generally do not take into account the possibility of reverse causation from performance to capital structure, which may result in simultaneous-equations bias. Berger/di Patti [2002] offer two hypotheses of reverse causation based on violations of the Modigliani-Miller perfect-markets assumption. It is assumed that various market imperfections (e.g., taxes, bankruptcy costs, asymmetric information) result in a balance between those favoring more versus less equity capital, and that differences in profit efficiency move the optimal equity capital ratio marginally up or down.[20]

Under the *efficiency-risk hypothesis*, firms that are more efficient choose lower equity ratios than other firms, all else equal, because higher efficiency reduces the expected costs of bankruptcy and financial distress. Under this hypothesis, higher profit efficiency generates a higher expected return for a given capital structure, and the higher efficiency substitutes to some degree for equity capital in protecting the firm against future crises. This is a joint hypothesis that:

i) profit efficiency is strongly positively associated with expected returns, and
ii) the higher expected returns from high efficiency are substituted for equity capital to manage risks.

The evidence is consistent with the first part of the hypothesis, i.e., that profit efficiency is strongly positively associated with expected returns in banking. Profit efficiency has been found to be significantly positively correlated with returns on equity and returns on assets[21] and other evidence suggests that profit efficiency is relatively stable over time,[22] so that a finding of high current profit efficiency tends to yield high future expected returns.

The second part of the hypothesis – that higher expected returns for more efficient banks are substituted for equity capital – follows from a standard Altman Z-score analysis of firm insolvency.[23] High-expected returns and high equity capital ratio can each serve as a buffer against portfolio risks to reduce the probabilities of incurring the costs of financial distress/bankruptcy, so firms with high-expected returns owing to high profit efficiency can hold lower equity ratios. The Z-score is the number of standard deviations below the expected return

[20] See Harris/Raviv [1991] and Myers [2001] for general discussions of the choice of capital structure, and see Berger, Herring, and Szegö [1995] for a discussion that focuses on capital choices in banking.
[21] See Berger/Mester [1997]
[22] See DeYoung [1997]
[23] See Altman [1968]

that the actual return can go before equity is depleted and the firm is insolvent, $Z_i = (\mu_i + ECAP_i)/\sigma_i$, where μ_i and σ_i are the mean and standard deviation, respectively, of the rate of return on assets, and $ECAP_i$ is the ratio of equity to assets. Based on the first part of the efficiency-risk hypothesis, firms with higher efficiency will have higher μ_i. Based on the second part of the hypothesis; a higher μi allows the firm to have a lower $ECAP_i$ for a given Z-score, so that firms that are more efficient may choose lower equity capital ratios.

The *franchise-value hypothesis* focuses on the income effect of the economic rents generated by profit efficiency on the choice of leverage. Under this hypothesis, firms that are more efficient choose higher equity capital ratios, all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation. Higher profit efficiency may create economic rents if the efficiency is expected to continue in the future, and shareholders may choose to hold extra equity capital to protect these rents, which would be lost in the event of liquidation, even if the liquidation involves no overt bankruptcy or distress costs.

Table 4.1

Hypotheses for Reverse Causality from Performance to Capital Structure

Hypotheses	Theory	Explanation
$\frac{\partial Lev}{\partial Perf} > 0$	Efficiency - risk argument	Firms that are more efficient choose lower equity ratios than other firms, all else equal, because higher efficiency reduces the expected costs of bankruptcy and financial distress.
$\frac{\partial Lev}{\partial Perf} < 0$	Franchise value argument	Firms that are more efficient choose higher equity capital ratios, all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation.

Prior evidence supports the notion that firms hold additional equity capital to protect franchise value. For example, the relaxation of chartering rules the early 1980s appears to have resulted in banks lowering their equity capital and taking on more portfolio risk, since they had less franchise value to protect.[24] Firms with unique products are also found to have higher equity capital ratios, all else equal, as product uniqueness can create market power rents and the firm may hold extra

[24] See Keeley [1990]

equity capital to protect these rents.[25] In banking, it is often argued that relationship lending creates such rents because the bank has proprietary access to information about loan customers.[26] The franchise-value hypothesis is a joint hypothesis that profit efficiency is a source of rents, and that banks hold additional equity capital to prevent the loss of these rents in the event of liquidation.

These two hypotheses yield opposite predictions from one another for the effects of profit efficiency on equity capital or leverage. The two individual effects may be thought of as substitution and income effects. Under the efficiency-risk hypothesis, the expected earnings from high profit efficiency substitute for equity capital in protecting the firm from the expected costs of bankruptcy or financial distress, whereas under the franchise-value hypothesis, firms try to protect the income from high profit efficiency by holding additional equity capital. Berger/di Patti [2002] interpret their findings as the net effect of these two hypotheses. Thus, these hypotheses are only partially identifiable in the sense that they can only distinguish which one is more important than the other is.

This reverse causality is also found in the studies of Kovenock/Phillips [1997] that argue that the potential for simultaneity between capital structure decisions and product market performance largely stems from time-varying factors that affect all of the firms in an industry, such as capacity utilization, demand condition, etc.

4.4 EMPIRICAL EVIDENCE OF THE RELATIONSHIP BETWEEN CAPITAL STRUCTURE AND PERFORMANCE

One of the main factors that could influence the firm's performance is capital structure. Since bankruptcy costs exist, deteriorating returns occur with further use of debt in order to get the benefits of tax deduction. Therefore, there is an appropriate capital structure beyond, which increases in bankruptcy costs, are higher than the marginal tax-sheltering benefits associated with the additional substitution of debt for equity. Firms are willing to maximize their performance, and minimize their financing cost, by maintaining the appropriate capital structure or the optimal capital structure. Harris/Raviv [1991] argued that capital structure is related to the trade-off between costs of liquidation and the gain from liquidation to both shareholders and managers. Therefore, firms may have more debt in their capital structure than is suitable as it

[25] See Titman [1984], Titman/Wessels [1988]
[26] See Petersen/Rajan [1995]

gains benefits for both shareholders and managers. However, as stated in the previous literature, underestimating the bankruptcy costs of liquidation or reorganization, or the aligned interest of both managers and shareholders, may lead firms to have more debt in their capital structure than they should.[27] Krishnan/Moyer [1997] found a negative and significant impact of total debt to total equity (TD/TE) on return on equity (ROE). Another study by Gleason, Mathur and Mathur [2000] found that firm's capital structure has a negative and significant impact on firm's performance measures return on assets (ROA), growth in sales, and pre tax income. Therefore, high levels of debt in the capital structure would decrease the firm's performance.

However, not only does a firm's level of leverage affect corporate performance and failure but also its debt maturity structure.[28] Schiantarelli/Sembenelli [1999] investigated the effects of firms' debt maturity structure on profitability for Italy and the United Kingdom. They found a positive relationship between initial debt maturity and medium term performance. A study by Barclay/Smith [1995] provides evidence that large firms and firms with low growth rates prefer to issue long-term debt. Another study by Stohs/Mauer [1996] suggested that larger and less risky firms usually make greater use of long-term debt. They also found that debt maturity is negatively related to corporate tax, the firm's risk and earning surprises. In other words, the choice of debt structure could have an impact on both corporate performance and failure risk. Furthermore, there are other factors, besides capital structure, that may influence firm performance such as firm size, age, growth, risk, tax rate, factors specific to the sector of economic activity, and factors specific to macroeconomic environment of the country.

Zeitun/Tian [2007] reported that the short-term debt to total assets has a positive and significant effect on the market performance measure (Tobin' s Q), which could to some extent support Myers's [1977] argument that firms with high short-term debt to total assets have a high growth rate and high performance. Meanwhile, Majumdar/Chhibber [1997] that investigated the relationship between leverage, or the level of debt in the capital structure, and performance for a large cross-section of Indian firms, found a negative relationship that is not in accordance with the assumptions of theory as commonly accepted in Western economies.

Schiantarelli/Srivastava [1997] empirically investigate the determinants and consequences of the term structure of debt. Using a rich panel of data on privately owned companies in India, they also examine the influence of debt maturity structures on those firms' performance, especially on productivity. The results are not conclusive, but seem to support conventional beliefs about the

[27] See, for example, Harris/Raviv [1991]
[28] See Barclay/Smith [1995] and Ozkan [2002]

importance of long-term finance to firm performance. Heavy leveraging, however, has a strong negative impact on productivity.

A non-monotonic association between external (debt-like) financing and product market outcomes is shown in Campello's [2005] investigation that suggest that moderate debt taking by a firm may, on the margin, yield market share gains. After some point, though, additional indebtedness leads to significant sales underperformance.

By using a model of potential disagreement between managers and investors that leads to testable predictions about both capital structure and dividend policy, Faulkender et al. [2005] find that better corporate performance, and consequently higher agreement between the manager and investors, results in lower debt-equity ratios. The better a firm performs; the greater is the confidence that investors have in the manager's ability to make future decisions that will also result in good performance. Hence, the probability that investors will disagree with the manager's project choice declines and this makes it less expensive for the manager to make financial policy choices that increase the manager's project-choice control and reduce the investors' ability to block such project choices. In the other words, company performance determines capital structure.

The same result also is revealed by Moon/Tandon [2007] that investigate whether the association between leverage with the magnitude of growth opportunities. They find that performance, which is proxied by earnings before extraordinary items divided by total assets, has a negative significant relationship to debt-to-equity ratio. This association exists significantly in large firms with high and low growth, and in small firms with high growth.

4.5 RESEARCH HYPOTHESES

Based on the theoretical literature in section 2.5 (Chapter 2), agency problems are important in determining not only ownership structures but also capital structures. The alternative capital structures will lessen against different agency problems within signaling models on which this thesis analysis is based. High leverage may reduce the agency costs of outside equity, and increase firm value by encouraging managers to act more in the interests of shareholders. Most existing literature in this area seeks to investigate the relation between profits (internal finance) and the choice between debt and equity (external finance). This however tends to be within a single equation approach, thus ignoring the potential simultaneity in the determination of profits and leverage. This is perhaps surprising when one considers the large literature that is concerned

with determining the optimal capital structure at the firm level, see for example Rajan/Zingales [1995], or Roberts [2002] and the literature discussed therein.

Berger/di Patti [2003] offer two hypotheses for the reverse causation from performance to capital structure. First, firms that are more efficient choose lower equity ratios than others, all else equal, because higher efficiency reduces the expected costs of bankruptcy and financial distress. The second hypothesis focuses on the income effect of the economic rents generated by efficiency (as an indicator of performance) on the choice of leverage. Thus firms that are more efficient choose higher equity capital ratios, all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation. Prior evidence supports the notion that firms hold additional equity capital to protect franchise value.[29]

Following the Berger/di Patti's model, the exclusion of ownership structure variables may bias tests of the agency costs hypothesis of the effects of capital structure on firm performance. The author argues that ownership structure as well as capital structure should be included in studies of agency costs, since the separation of ownership and control that creates the agency costs. A number of prior studies examine the effects of capital structure on performance without controlling for ownership structure,[30] while others evaluated the effects of ownership structure on performance without controlling for capital structure.[31]

If firm performance affects the choice of capital structure and vice versa, then the failure to take this into account may result in serious simultaneity bias, with important implications for pattern of firm financing and performance. In the light of the two-way relationship between capital structure and firm efficiency, one needs to allow for the simultaneity between capital structure and firm performance. Thus, hypothesis (5) and (6) are modified as follows:

H_5: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher firm performance are likely to have a higher debt ratio, ceteris paribus.

H_6: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher debt are likely to have a higher firm performance, ceteris paribus.

[29] For example Keeley [1990]
[30] For example Titman/Wessels [1988]
[31] For example Mester [1993], Pi/Timme [1993], Gorton/Rosen [1995], DeYoung, Spong and Sullivan [2001]

As argued above, firms with higher profit margins may substitute outside equity capital for debt. On the other hand, it may also be true that firms that are more efficient try to protect the value of their high income by holding more equity capital. The estimated coefficient of profit in the leverage equation would capture the net value of these two possible and opposite effects.

As indicated above, one may also expect some non-linearity in the effects of firm performance on capital structure so that firms at a higher level of efficiency may behave differently from those at a lower level. Since I am not sure about the nature of this non-linearity, I experiment with a few alternatives, namely, (a) inclusion of an additional square term of performance measure, (b) replacing performance measure by its log (natural) and (c) inclusion of an additional inverse term of the performance measure.

The agency cost hypothesis would predict that an increase in leverage raises efficiency. Some may however argue that there is a possible non-linearity in the effects of leverage on profit margin as a measure of firm efficiency as well. In particular, when leverage is sufficiently high, further increases may result in lower efficiency because the benefits in terms of reduced agency costs of outside equity are overcome by greater agency costs of debt.

4.6 CONCLUDING REMARKS

This chapter discusses two hypotheses about capital structure and firm performance. These hypotheses and their associated arguments are an extension of Berger/di Patti's [2002] investigation that offer two hypotheses of reverse causation based on violations of the Modigliani-Miller perfect-markets assumption. These hypotheses become important because it does not only allow for simultaneity between capital structure and firm performance, but also the non-linearity in these relationships. These hypotheses are summarized below in Table 4.2.

The test of these hypotheses contributes to this area of research by:

(a) Investigating whether the simultaneity and non-linearity between capital structure and firm performance exist in East Asian countries,

(b) Since corporate managers and external block holders are two groups of shareholders who have an influence on decisions concerning the allocation of the firm's resources, the research focuses on the effects of managerial share ownership and external block ownership on the leverage ratio and consequently on the firm performance, and

(c) The research results will extent empirical evidence of reverse causality between capital structure and firm performance.

In order to achieve the research objective, this thesis uses an agency framework to develop several testable hypotheses, as follows:

(a) First, the external block ownership model, managerial share ownership model and firm performance measures identifies the effect of these three variables on the corporate debt ratio. In prior researches, firm performance is normally endogen variable.

(b) Second, the research develops a model that incorporates the effects of external block ownership, managerial share ownership and the level of debt on the firm performance, to look the effect of reverse causality and simultaneity between capital structure and firm performance.

Table 4.2

The hypotheses on capital structure and firm performance

Hypothesis	Theory or argument	Causality
Hypothesis 5: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher firm performance are likely to have a higher debt ratio, ceteris paribus.	• Berger and di Patti (2002) • Brailsford et al. (2002) • Nigel et al. (2005) • Campello (2005) • Faulkender et al. (2005) • Moon and Tandon (2007)	(D/E) = f (external block ownership, managerial share ownership, firm performance)
Hypothesis 6: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher debt are likely to have a higher firm performance, ceteris paribus.	• Berger and di Patti (2002) • Brailsford et al. (2002) • Nigel et al. (2005) • Campello (2005) • Faulkender et al. (2005) • Moon and Tandon (2007)	(Firm Performance) = f (external block ownership, managerial share ownership, D/E)

CHAPTER 5

OWNERSHIP STRUCTURE AND FIRM PERFOMANCE: LITERATURE REVIEW AND THE HYPOTHESES

5.1 INTRODUCTION

What are the characteristics of 'good' ownership structure? Does ownership structure matter for firm performance? Why certain firms have large block holders and others do not? Should the power of large shareholders be limited to avoid expropriation or encouraged to curb managerial discretion? These questions have been largely explored in corporate finance literature and we understand better now the intricacies of the relationship between ownership structure and firm performance.

However, empirical evidence on the impact of shareholders with significant equity holdings on corporate performance remains ambiguous. Various authors using different samples of firms and different empirical strategies obtain different, difficult to compare and sometimes contradictory, results. It is increasingly recognized that the problem in disentangling this relationship is largely due to the pervasive endogeneity of ownership, which has to be taken into account in order to obtain unbiased results. Nevertheless, the existing empirical evidence also suggests that the relationship between ownership and performance may depend on the type of the firm and on the period of observation in the life of the firm.

The objective of this chapter is first and foremost to take a closer look on the concepts and theories of ownership structure and firm performance. These theories have grown considerably in number and some of them have undergone serious refinements since the early days of Adam Smith. However, the survey here is rather informal and leaves the more rigorous expositions for the references. Another objective is to emphasize the features of the theories that are relevant in connection with empirical testing. In particular, the causal and dynamic aspects of the theories are accentuated. The remainder of the chapter is organized around five prominent hypotheses about ownership structure and firm performance. For each hypothesis, the literature on performance and ownership structure has come up with several different empirical evidences or arguments that may explain the relation that is postulated by the particular hypothesis. These arguments are discussed one by one and concluding remarks follow.

5.2 OWNERSHIP STRUCTURE AND FIRM PERFORMANCE

Prior researches have shown that the impact of ownership on firm performance is twofold. On the one hand, concentrated ownership can provide for better control of management, as size of ownership stake and the incentive to monitor are positively correlated. In turn, it should improve firm performance and equally benefit minority shareholders. On the other hand, it can come with costs for minority shareholders as the controlling owners might try to expropriate from them. This is one of a number of private control benefits enjoyed by large block holders at the expense of firm value.[1] A number of surveys have attempted to measure these at the country level. For example, Nenova [2000] documents differing levels of private control benefits across a large cross-section of countries reflected in premiums paid for voting shares. Dyck/Zingales [2004] document similar control premia paid in European block trades. Bebchuk [1999] argues that it is rational for block holders to grab these private control benefits before managers do.

The existing literature is split concerning the effect of ownership on performance. Bebchuk/Roe [1999] and Roe [2003] argue that what, at face value, appear to be inefficient ownership structures (whether dispersed or concentrated), are in fact efficient in the context of their institutional environment. Coffee [1999, p. 3] argues that the current ownership arrangements are more a "product of a path-dependent history than the 'neutral' result of an inevitable evolution toward greater efficiency." If this second proposition is correct, then the predominant ownership structure might not necessarily be the best performing one.

Thomsen et al. [2003] who showed that block holders might destroy firm value when studying firms in the largest continental European countries confirm this suspicion. Nevertheless, all the above evidence clearly implies that ownership structures matter for firm performance, whether positively or negatively.

Acemoglu [1999b, 2004] has pointed out that the long-run equilibrium of economic institutions is often sub-optimal. In his research, reform of institutional arrangements, within which it includes corporate control and governance arrangements, might imply a possible loss to groups that currently hold power. It is argued that as these groups cannot be credibly compensated ex-post for their loss of power, they have an incentive to block change. The implication is that ownership structures might not adjust perfectly to changes in economic conditions or the needs of the firm.

[1] See Jensen/Meckling [1976], Grossman/Hart [1988].

This view would predict that we would see inefficient ownership structures persist over time. As Zingales/Rajan [2003, p. 2] state, "financial systems do not .... emerge simply as a result of their superiority in a particular environment. The power of vested interest distorts the process of evolution".

These findings are in clear contradiction to Demsetz/Lehn [1985] and the research of Demsetz/Villalonga [2001]. They argue that an optimal ownership structure is achieved through private contracting between shareholders and management based on the value maximization principle. The financing costs of concentrated ownership increase with firm size because families, and other controlling investors, cannot diversify their portfolio. Therefore, a firm has a natural incentive to move to a more diffuse ownership structure, and we should observe an optimal ownership structure where the benefits of control and financing are at equilibrium. Consequently, they argue that no relation between the two variables can be detectable, and empirically found no relationship between ownership structure and performance for a sample of US firms between 1976 and 1980.

5.3 OWNERSHIP CONCENTRATION AND PERFORMANCE

The nature of a corporation's ownership structure will affect the nature of the agency problems between managers and outside shareholders, and among shareholders. When ownership is diffuse, as is typical for U.S. and U.K. corporations, agency problems will stem from the conflicts of interest between outside shareholders and managers who own an insignificant amount of equity in the firm.[2] On the other hand, when ownership is concentrated to a degree that one owner has effective control of the firm, as is typically the case in Asia, the nature of the agency problem shifts away from manager-shareholder conflicts to conflicts between the controlling owner (who is often also the manager) and minority shareholders.

Ownership concentration, i.e., the existence or degree of block holdings, is the most often examined form of ownership measure.[3] The following section examines its effect on performance, before the reverse effect is considered in Section 5.3.1. Finally, the hypotheses considered in the further analysis and their effects are summarized.

[2] See Jensen/Meckling [1976]

[3] For an overview over studies on ownership concentration and its effect on corporate control see Holderness [2003] and Short [1994].

5.3.1 Effect of Ownership Concentration on Performance

Table 5.1 gives a brief overview over the different hypothesized effects explained in this section and the theories, of which they are based on.

The argument for a positive effect of ownership concentration on performance is given by the shareholder-management agency conflict. The benefits of monitoring are increasing with share size, while the occurred costs do not augment with the ownership concentration. A larger share size thus increases the cost-efficiency of monitoring and due to this higher incentive enhances its usage.[4] Furthermore, a larger share size might even raise the shareholders' capability of control, since block holders are assumed to be better informed than average investors might. In addition, this higher insight to the company also reduces the costs for explicit monitoring, which further increases its cost-efficiency. Thus high ownership concentration leaves the shareholder not only highly motivated to monitor the management but also more capable in controlling them.[5]

Table 5.1

Hypotheses for an Effect of Ownership Concentration on Performance

Hypotheses	Theory	Explanation
$\frac{\partial Perf}{\partial OC} > 0$	Monitoring argument	Large owners are more capable of monitoring and controlling the management, thereby contributing to corporate performance.
$\frac{\partial Perf}{\partial OC} < 0$	Over-monitoring argument	Managers may be discouraged from making costly firm specific investments.
	Private benefits of control	The blockholder gains private benefits of control, possibilities for certain actions (e.g., insider contracts) which can be against shareholder's interest.

[4] See Shleifer/Vishny [1986, p. 463].

[5] See Bøhren/Ødegaard [2003, pp. 4-5], Bushee [1998, p. 309], Holderness [2003, p. 56], Shleifer/Vishny [1997, p. 754], and Shleifer/Vishny [1986]. This hypothesis is theoretically proven by the models of Grossman [1976], Grossman/Hart [1980], Shleifer/Vishny [1986] and others as Bolton/von Thadden [1998], Burkart et al. [1997], Huddart [1993], Leech [2001], and Maug [1998]. Empirical evidence supporting this hypothesis is found by several studies as: Agrawal/Knoeber [1996], Agrawal/Mandelker [1990], Bebchuk/Fried [2003], Bertrand/Mullainathan [2000], Brailsford et al. [2002], Carney/Gedajlovic [2002], Denis/Serrano [1996], Edwards/Weichenrieder [1999, 2004], Franks et al. [1997], Gedajlovic/Shapiro [2002], Hill/Snell [1989], Hindley [1970], Kaplan [1989], Monsen et al. [1968], Mørck et al. [1988], Pedersen/Thomsen [1998, 1999], Renneboog [2000], Short et al. [2002a], Wruck [1989], Yafeh/Yosha [1995], and Zeckhauser/Pound [1990].

While the ability to control the actions of the management rests on the control rights of the share, the incentive for monitoring depends on the degree of alignment between the cash flow function of the shareholder and the performance of the cooperation. Therefore, it depends on the cash flow rights held by the shareholder. Recapitulating, the monitoring activity by the shareholder is determined by the incentive through cash flow rights and the control capability represented through the control rights. Hence, it is a conjoint effect, which can be viewed as a product of the control and cash flow rights. For example, if the shareholder holds only a small cash flow entitlement, he will not put much effort in monitoring activities, no matter how high his control ability is. Consequently, an increasing divergence of control and cash flow rights causes a mitigation of the monitoring effect.

The second group of hypotheses supports a negative effect of ownership concentration on performance.[6] An argument closely linked to the monitoring argument is the *over-monitoring*. It was introduced and model theoretically proven by Burkart et al. [1997] and Pagano/Röell [1998]. They assume that the increased control reduces the space for self-realization of the management and hence discourages the managers. This de-motivation renders the management less active. The reduced managerial effort and space for initiative diminishes the firm performance.[7] Fee [2002] proves the importance of the over-monitoring argument by using the artistic stakes in the film industry, where self-realization and motivation have a high impact. Similar to the monitoring argument, the over-monitoring effect is conjointly determined by control and cash flow rights. Accordingly, a high divergence reduces its strength.

A further negative effect based on agency theory is the theory of *private benefits of control*.[8] While the higher information base and influence of a large shareholder is advantageous in reducing the shareholder-management agency conflict, it also generates an additional conflict. Since the large shareholder is better informed and has more control rights than minority shareholders, he might use this to exploit possibilities for beneficial actions, which may endanger for shareholder value.[9] Apart from theoretical arguments by the models of Burkart et al. [1997] and Zwiebel [1995] the existence of such benefits is empirically supported by several studies as Barclay et al. [1993], Dyck/Zingales [2004], Zingales [1994], and Wruck [1989]. They prove higher premiums for block trades, which have to stem from benefits only accessible for block

[6] Such a relation was found by several studies as Hindley [1970], Lehmann/Weigand [2000], and Pedersen/Thomsen [1999].
[7] See Burkart et al. [1997, p. 674] and Pagano/Roell [1998, pp. 187-190].
[8] See Agrawal/Samwick [2003], Barclay/Holderness [1989], Dyck/Zingales [2004], Zingales [1994], and Zwiebel [1995]
[9] See Barclay/Holderness [1989, p. 372] and Holderness [2003, pp. 55-56].

holders. Prominent examples for such private benefits are self-trading or insider contracts.[10] Furthermore, block holders and minority shareholders may also have different preferences regarding time horizon and investment goals. An example is given by Fama/Jensen [1985] who prove different investment rules for companies with large shareholders and a stronger retention of dividends.[11]

Minority shareholders cannot prevent those damages given the large share and influence of the block holder that creates a hold up problem.[12] With the increase of control rights, the block holder has more power to influence the company decisions, and it is more entrenched against the sanctions of other shareholders; thus, the possibility of a successful execution of harmful actions rises. The cash flow rights indicate the degree to which the damage of the company's performance is carried by the block holder and determine the opportunity costs of the exploitation of the private benefits. Consequently, the increase of cash flow rights reduces the incentive for a harmful action and a high divergence of control and cash flow rights strengthens the negative effect of ownership concentration on performance.

5.3.2 Effect of Performance on Ownership Concentration

While many studies support the effect of ownership concentration on performance, Demsetz/Lehn [1985] argue for the endogeneity of ownership and a reverse effect of performance on ownership concentration. The hypotheses on this effect direction are summarized in Table 5.2.

The most known hypothesis is the *insider-investment argument* that assumes a positive effect of performance on ownership concentration. More already indicated in the previous section, a large shareholder is better informed than minority shareholders or potential investors. He uses his knowledge about the firm's prospects to maximize his wealth. He capitalizes on his insights, increases his ownership when expecting good financial performance, and decreases his share when expecting the deterioration of financial performance. As a result, well performing firms

[10] See Bebchuk [1999], Bebchuk et al. [2000], Burkart et al. [1997], Goshen [2003], Zingales [1994], and Zwiebel [1995].

[11] See also Anderson/Reeb [2003, p. 1304], Becht [1999], and Lemmon/Lins [2003, pp. 1445-1446 and p. 1466].

[12] See Barclay/Holderness [1989] and La Porta et al. [2002, p. 1148]. This problem is similar to the general entrenchment argument of insider ownership.

should be higher concentrated than bad ones.[13] The models by Grossman/Stiglitz [1976], Grossman [1976, 1995], and Grossman/Hart [1980] provide a detailed rationale on how an informed investor is able to generate higher returns on his investments than the average investor is.

Table 5.2

Hypotheses for an Effect of Performance on Ownership Concentration

Hypotheses	Theory	Explanation
$\frac{\partial OC}{\partial Perf} > 0$	Insider - investment argument	Blockholders have insider knowledge and may capitalize on their insights by adapting their ownership position.
	Profit-debt-ownership argument	The modified pecking order hypothesis combined with the substitution effect of agency devices: performance decreases debt and lower leverage increases ownership concentration.

A further argument for the positive effect of performance on ownership concentration is the *profit-debt-ownership argument*.[14] It combines two effects: the modified pecking order hypothesis and the substitution effect of agency devices. The modified pecking order hypothesis by Myers/Majluf [1984] assumes a negative relation of performance on debt, since profitable firms have more internal funds to finance their investments.[15] The second element that is proposed by Jensen/Meckling [1976] claims that financial leverage has a negative effect on ownership concentration. Since leverage controls the agency conflicts between shareholders and managers, the need for external capital to mediate the conflict decreases.[16] Consequently, performance decreases the leverage, which increases the ownership concentration. However, the studies performed in the following include leverage as a control variable. Consequently, the effect of leverage on ownership concentration will be represented in its coefficient and not be detectable in the direct effect of performance on ownership. Hence, this hypothesis is not further considered in this work.

[13] See Anderson/Reeb [2003, p. 1303], Chang [2003], Demsetz/Lehn [1985], Lemmon/Lins [2003, p. 1446], Loderer/Martin [1997, p. 237], and Thompson II [1976, p. 2].

[14] See Jensen et al. [1992, p. 250].

[15] The pecking order theory was first proposed by Donaldson [1961] to explain observed financial behavior of firms. Myers/Majluf [1984] and Myers [1984] introduced a modified version with informational asymmetries and bankruptcy costs to also influence capital structure policy. It states that, as far as firms can choose, they prefer internal over equity financing and equity over debt financing.

[16] See Jensen [1986, pp. 323-329].

5.4 INSIDER OWNERSHIP AND PERFORMANCE

The effect of managerial ownership on performance has been intensively discussed since Jensen/Meckling [1976], who introduced the management-shareholder agency conflict. Accordingly, the most extensive research was done on this relation.[17] However, as mentioned in Chapter 2, the definition used for managerial or insider ownership varies in literature. In the following explanations the denotations "insider ownership" and "managerial ownership" are used synonymously and refer to cohesive shareholdings of management (and board) neglecting the definition differences. Other forms of insiders such as company founders and families are not considered. Nevertheless, the latter may be considered indirectly in the indirect shareholdings of the management or board.

The sections are structured analogously to the previous chapters. First, the effects of insider ownership and then the reverse effects by performance are examined. Finally, both sections are summarized.

5.4.1 Effect of Insider Ownership on Performance

The early discussion of the effect of insider ownership on performance has its main arguments that stem from 1976 and 1980. These arguments also have been combined to non-monotonous effects. The two best-known combinations are stated together with the simple hypothesized effects in Table 5.3.

The earliest argument was brought on by Jensen/Meckling [1976] and it is based on the principal-agent theory. It assumes a positive effect of managerial stock ownership, since it adds a factor depending on shareholder value to the utility function of the management. Thus, the managerial utility function becomes more similar to that of the shareholders. Consequently, the opportunity costs of harming actions rise and diminish their advantage for the management.[18] Due to the assimilation of the utility functions, the hypothesis is called *interest or incentive alignment argument*.[19] Since the effect depends on the degree of loss due to harming actions, it

[17] For a literature review on insider ownership and performance see Short [1994] and Holderness [2003]

[18] See Benston [1985], Brandhoff [1999, p. 223], Byrd et al. [1998, pp. 18-19], Cebenoyan et al. [2000, p. 23], Cui/Mak [2002, p. 315], and Jensen/Meckling [1976, p. 312-313]. Next to simple stock ownership, similar amelioration of the agency conflict can be achieved through different compensation designs. See Byrd et al. [1998, pp. 19-21], Huddart [1993], and Jensen/Murphy [1990].

[19] See Achleitner/Wichels [2000, pp. 7 and 10], Bøhren/Ødegaard [2003, p. 5], and Cebenoyan et al. [2000, p. 23]

depends on the cash flow rights. Accordingly, the divergence of ownership and control reduces the strength of the effect and has a negative effect on performance.

Table 5.3

Hypotheses for an Effect of Insider Ownership on Performance

Hypotheses	Theory	Explanation
$\frac{\partial Perf}{\partial MO} > 0$	Incentive alignment argument (IAA)	Managerial ownership reduces conflict of interest between shareholder and manager.
$\frac{\partial Perf}{\partial MO} < 0$	Entrenchment argument (EA)	Managerial ownership increases power of manager creating a hold-up problem.
$\frac{\partial Perf}{\partial MO} > 0$ $\frac{\partial Perf}{\partial MO} < 0$ $\frac{\partial Perf}{\partial MO} > 0$	Mørck et al.'s combined argument - IAA - EA	Non-monotonous relationship: IAA dominates EA for low managerial ownership, then the relation reverses for medium level and reverses again for high level of managerial ownership.

While many studies support the incentive alignment argument, many other studies find no or even a negative relation, as for instance Ware [1975]. These contradicting results are explained by a further hypothesis, implying a negative effect of insider ownership on performance. This argument is called entrenchment argument and it was developed by Fama [1980], Fama/Jensen [1983b], and Demsetz/Ricardo-Campbell [1983]. It is also based on the principal-agent theory. Instead of reducing the conflict through an interest alignment, insider ownership is argued to create a hold-up problem.[20] Due to its share, the management can protect itself against disciplining actions, the so-called managerial entrenchment.[21] It averts punishment or reduces the degree of possible punishment and thus allows the management to conduct firm-harming actions at lower opportunity costs and risk.[22] A rise in control rights strengthens the entrenchment, while the cash flow rights increase the opportunity costs and reduce the incentive for harming actions. Consequently, a high divergence of both worsens the performance loss.

[20] The shareholder recognizes the opportunistic behavior of the management, but cannot prevent it. See Grossman/Hart [1986], and Williamson [1975].
[21] The notation "entrenchment hypothesis" was first introduced by Mørck et al. [1988, p. 294].
[22] See Mørck et al. [1988, pp. 293-294], Shleifer/Vishny [1989, pp. 123-124], and Stulz [1988, pp. 27-28].

One could argue that due to the incentive alignment the manager will not harm shareholder value. However, his utility function does not only consist of monetary aspects, but also includes factors such as power, prestige, and career prospects. Following the principle of diminishing marginal rates of substitution, these aspects gain relatively more importance the wealthier a manager is. If a manager holds a large share, he is probably wealthy and therefore less motivated by money than by intrinsic factors.

Mørck et al. [1988] indicate that the entrenchment works through several channels:[23]

1. impeding owner's and creditor's control,
2. impeding control through the market for managerial labor,
3. impeding control through the market for corporate control, and
4. impeding control through product markets.

Next to the shareholder, the creditor has also a monitoring function. For firms with high managerial ownership the control through other owners and creditors becomes inefficient, since the other shareholders and creditors are relatively too weak to impose a sanction.[24]

Additionally Fama [1980] assumes a disciplining effect of the market for managerial labor. However, he argues that highly concentrated managerial ownership would prevent any competition for the managerial position.

Furthermore, the market of corporate control has a sanctioning function on opportunistic behavior. A poorly performing company is more likely to become the object of a hostile takeover, after which the management might be replaced. However, with rising managerial ownership the management can more easily oppose the takeover.[25] This was already supported by Weston [1979], who found no hostile takeovers in the case of a managerial ownership above 30%.

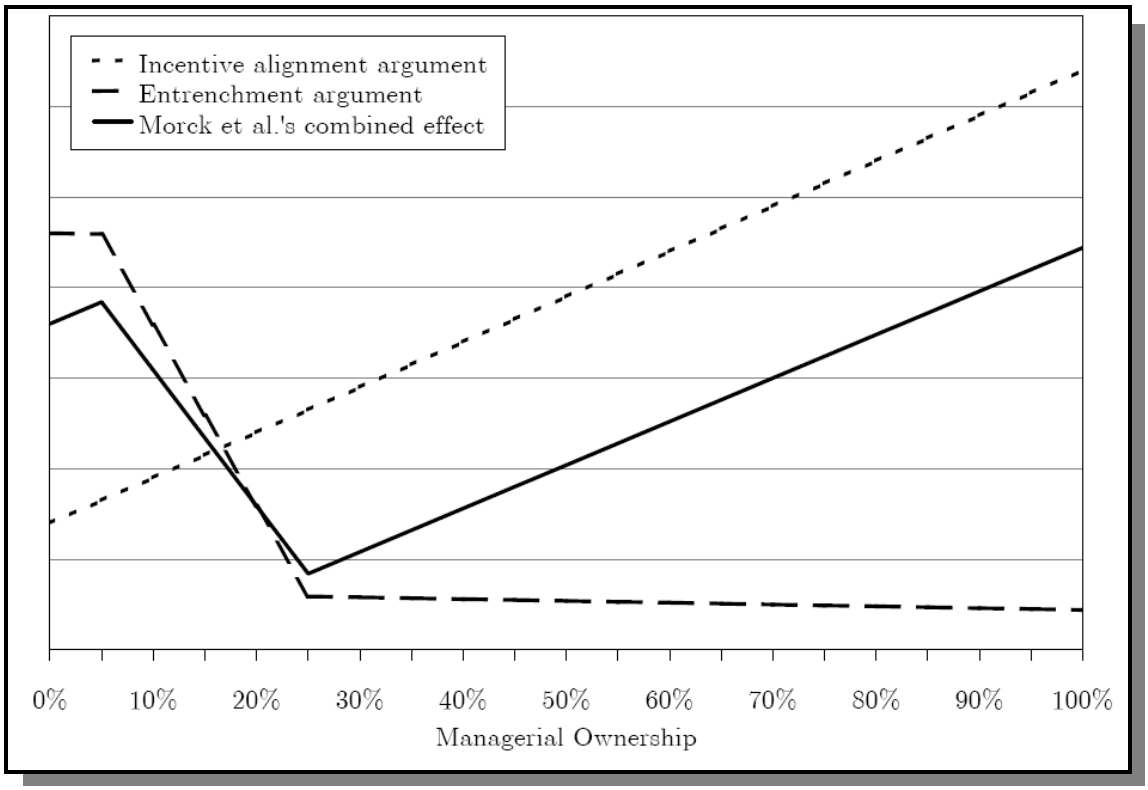
Finally, Machlup [1967] argues that in the case of efficient product markets supernormal profits do not exist. Therefore, if managers do not maximize profits, the company will fail. Yet, the model by Hart [1983] proves that managerial ownership can cause even an entrenchment against the control of product markets.

[23] See Mørck et al. [1988, p. 294].
[24] See Demsetz/Ricardo-Campbell [1983] and Fama/Jensen [1983b]
[25] See Jensen/Ruback [1983], Mørck et al. [1988, p. 294], Stulz [1988, p. 50], and Walkling/Long [1984].

Many studies combine those two contradicting hypotheses resulting in a non-monotonous effect. The most famous example is Mørck et al. [1988], whose combination is graphically demonstrated in Figure 5.1. They assume the incentive alignment argument to be linear, while the general entrenchment argument is a monotonous, nonlinear effect with a large gradient for medium managerial ownership. In Mørck et al.'s combined argument the incentive alignment dominates the combined effect for low managerial ownership. For medium levels, the general entrenchment forces a negative effect. The combined effect again turns positive for high managerial ownership.[26]

Figure 5.1

Mørck et al.'s Combined Argument



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 51.

5.4.2 Effect of Performance on Insider Ownership

Apart from the many studies on the effect of insider ownership on performance, some researchers analyze whether the direction of causality is assumed right. The literature knows two

[26] The N-shape was often applied as for instance by Brailsford et al. [2002], Chen et al. [1993], Chen/Ho [2000], Cho [1998], Cleary [2000], Cui/Mak [2002], Gler et al. [2003b], Hermalin/Weisbach [1991], Hubbard/Palia [1995], Kole [1996], Mudambi/Nicosia [1998], Short/Keasey [1999], Short et al. [2002a, 1994], and Welch [2003]. However, the thresholds of 5% and 25% were often altered.

main hypotheses stating a positive or no effect of performance on insider ownership. These are given in Table 5.4.

The first argument for a positive effect is the *reward argument*.[27] Shareholders try to use the incentive alignment effect to ameliorate the firm's performance. Next to performance-based salaries, they also use stock grants or options as remuneration.[28] Managers of a well performing company receive shares or options that will be executed in the case of high performance. Consequently, the insider ownership rises with performance.[29] However, there is no consensus on the time period the performance data should be taken from. While some take the previous year's performance, others rely on the same year's performance.

Table 5.4

Hypotheses for an Effect of Performance on Insider Ownership

Hypotheses	Theory	Explanation
$\frac{\partial MO}{\partial Perf} > 0$	Reward argument	Financial reward their manager for good past financial performance by giving them equity ownership; therefore, better financial performance causes more management ownership.
	Insider - reward argument	Managers prefer equity compensation when they expect their firm to perform well. Consequently, firms with high corporate values have higher levels of insider ownership.
	Insider - investment argument	Insiders may capitalize on their insights by increasing their ownership when they expect the financial performance to improve and decrease their ownership.

The second effect, the *insider-reward argument*, is introduced by Cho [1998]. He hypothesizes that managers will choose or accept equity compensation if they expect the firm to perform well. They anticipate bad performance by trying to decrease the equity-based component of their remuneration. As a result, insider ownership increases when insiders expect good performance. If

[27] See Kole [1996, p. 16

[28] See Byrd et al. [1998, pp. 18-21], Huddart [1993], and Jensen/Murphy [1990]. For studies on the effect of the salary level and management turnover see Baker et al. [1988], Dahya et al. [1998], Denis/Serrano [1996], and Warner et al. [1988]. For performance based bond see Baker et al. [1988], Bushman et al. [1996], Gilson [1989], Kaplan [1994], Lambert/Larcker [1987], Murphy/Zimmerman [1993], and Sloan [1993]; for accounting based bond see Banker et al. [1996] and Kole/Lehn [1997] and for market-based bond see Yermack [1995] and Mehran [1995].

[29] See Lorie/Niederhoffer [1968], Masson [1971, p. 1291], and McEachern [1975, pp. 92-93].

their expectations hold true, which is likely due to the inside knowledge, high performance correlates with high managerial ownership.[30]

The third explanation does not originate from the research field of managerial remuneration. The *insider-investment argument* states that managers might capitalize on their insider knowledge regarding the firm's prospect. When they expect the financial performance to improve, they increase their share and decrease it in the case of performance deterioration.[31] Most countries circumscribe the possibility for insider investment. But even if insider trading immediately before announcements is forbidden by insider legislation, opportunities for capitalizing on the insight in periods without announcements still exist.[32]

Besides the fact that, compared to the reward arguments, literature deals more often with the insider-investment argument, its importance is further supported by statistical data. Forbes (ed.) [1991] names a sum of $0.6 million as average stock grants for the CEOs of the 800 largest US corporations in 1991. In comparison Holderness et al. [1999] report for a sample of 4,200 publicly listed US companies in 1995 combined holdings by officer and directors of $73.0 million. The simple adjustment for the sample size difference results in a comparative value of $3.15 million of CEO stock grants. This equals 4% of the total managerial ownership in 1995. It seems very unlikely that 96% of the insider holdings belong to other insiders than CEO or that the values changed that dramatically in four years.[33] This indicates that a large part of managerial ownership arises from personal investments rather than from equity remuneration.

5.5 RESEARCH HYPOTHESES

Reflecting to Holderness's investigation, in a reverse-causation problem the real causation runs in the opposite direction of the assumed one. This might yield significant results, but gives a wrong picture of the relation.[34] An effect may not only run the other direction than assumed yielding a reverse-causation problem, but there maybe even a multidirectional causation. The resulting

[30] See Cho [1998, p. 115] and Yermack [1997].

[31] Lorie/Niederhoffer [1968] started a whole series of papers examining if insider can outperform other investors by using their inside knowledge. See Ahuja et al. [2005], Beneish/Vargus [2002], Burton et al. [2003], Bushman et al. [2005], Chalmers et al. [2002], Gombola et al. [1999], Hanson/Song [1995], Hu/H. [2001], Lee [2002], Pescatrice et al. [1992], and Zhang [2005]

[32] See Mußler [2005], Loderer/Martin [1997, p. 237], and Mathiesen [2002, p. 20]. Studies analyzing the insider-investment argument are Demsetz [1986], Eckbo/Smith [1998], Hermalin/Weisbach [1991], Jaffe [1974], Loderer/Martin [1997], Rozeff/Zaman [1988], and Seyhun [1986]

[33] Especially if considering the probably higher stock remuneration for CEOs compared to other insiders and for CEOs of the largest 800 companies compared the market.

[34] See Holderness [2003, p. 58].

endogeneity or simultaneous equations bias is very likely to exist in analyses of ownership and performance. As theory contains effects for both directions, from ownership on performance and vice versa, it supports the assumption of simultaneous reciprocal determination of ownership and performance. Although the endogeneity was already addressed by Demsetz/Lehn in 1985 and is widely accepted by researchers, it is rarely modeled in empirical studies.

Since it is limited and until now the author knows only six studies that model ownership and performance simultaneously.[35] Therefore, the ignorance of an existing endogeneity bias has resulted in inconsistent estimates and confused directions of causation. The results of these six studies partly differ drastically from those of studies without modeled endogeneity.[36] Therefore, the consideration of the simultaneous causation estimated by the simultaneous equations method is seen as the main advantage of this study.

Like Cho [1998] who has extended the argument of Demsetz and Lehn (1985) by examining the interdependence of managerial ownership, investment, and corporate value, in this study tries to develop the simultaneous causation of the ownership-performance relationship. In his study, drawing on Demsetz/Lehn [1985], simultaneous regression analysis was utilized to control for endogenity and it was found that ownership structure was endogenously determined by corporate value (as measured by Tobin's Q). It was also reported that investment and not managerial ownership significantly influenced corporate value. Cho [1998] concluded that managers in firms with higher Tobin's Q, or with better investment opportunities tend to hold a higher fraction of their firm's shares. However, he found no evidence that managerial ownership had a causal effect on investment or corporate value.

In the light of finding new evidences in simultaneous causation, the same consideration could be applied in the two-way relationship between ownership structure and firm value. Thus, one needs to allow for the simultaneity between ownership structure and firm performance.

This leads to the seventh, eight, ninth and tenth hypothesis:

H_7: Firms with a higher level of external block holdings and a higher debt ratio are likely to have higher firm performance, ceteris paribus.

H_8: Firms with low levels of managerial share ownership and higher debt are likely to have a higher firm performance, ceteris paribus.

[35] See Agrawal/Knoeber [1996], Bøhren/Ødegaard [2003], Cho [1998], Demsetz/Villalonga [2001], and Loderer/Martin [1997].
[36] See Mathiesen [2002, p. 47].

H_9: Firms with higher debt and higher firm performance are likely to have a higher level of external block holdings, ceteris paribus.

H_{10}: Firms with higher debt and higher firm performance are likely to have low levels of managerial share ownership, ceteris paribus.

The effect of general ownership concentration on performance is unclear due to the contradicting hypotheses. That is, while the concentration could lead to better monitoring and consequently to better performance, it could also trigger managerial de-motivation with a negative effect on performance. Furthermore, the block holder could use control to consume private benefits at the expense of other shareholders and firm performance.

However, performance can also determine ownership concentration. Large shareholders use their better company knowledge to increase their share if they assume good performance or to sell it in the case of a bad firm's prospect.

For the effect of insider ownership on performance, two contradicting arguments exist. While the managerial ownership aligns the managers' incentive with shareholders' interest, it can also entrench the management against controlling and sanctioning actions. The divergence of control and cash flow rights has a negative effect on performance, since the cash flow rights form opportunity costs of opportunistic behavior and benefits for shareholder-value-oriented actions.

The effect of performance on insider ownership is assumed, if existent, as positive. The first argument is that shareholders try to use managerial stock ownership or option plans as incentive alignment; thus, they reward the management for good performance with stocks. Second, the management of well performing companies favors stock remuneration and is more likely to accept or to promote those compensation designs. Finally, the managers use their insider knowledge to perform legal forms of insider trading. They increase their share if the company is perceived as well performing and reduce it in the case of bad firm prospects.

In order to see the simultaneity of combined effect of ownership concentration and insider ownership on performance, it is arranged another hypothesis that leads to the eleventh hypothesis, which has the same function with the sixth hypothesis in Chapter 4 (Capital Structure and Firm Performance). Therefore the test of combined effect of ownership concentration and

insider ownership on performance will be done as well as the test of capital structure effect on performance.

H_{11} or H_6: Firms with a higher level of external block holdings, low levels of managerial share ownership and a higher debt ratio are likely to have higher firm performance, ceteris paribus.

This hypothesis is intended to analyze whether both level of external block holding and managerial share ownership influence the firm performance or not. A simultaneous equations model assuming the performance as well as the different ownership forms as exogenous allows the consideration of ownership interactions and the clear separation of their effects on performance.

5.6 CONCLUDING REMARKS

This chapter discusses four hypotheses about ownership structure and firm performance. These hypotheses and their associated arguments are an extension of few studies in the field of ownership structure and firm performance that consider firm performance as endogenous variable. These hypotheses become important because it does not only allow for simultaneity between ownership structure and firm performance, but also it tests the endogeneity of performance in this relationship. These hypotheses are summarized below in Table 5.5.

The test of these hypotheses contributes to this area of research by:

(a) Investigating the possibility that an effect may not only run the other direction than assumed yielding a reverse-causation problem, but there maybe even a multidirectional causation,

(b) As theory contains effects for both directions, from ownership on performance and vice versa, it supports the assumption of simultaneous-reciprocal determination of ownership and performance. Although the endogeneity was already addressed by Demzets/Lehn in 1985 and is widely accepted by researchers, it is rarely modeled in empirical studies. The author knows only six studies that model ownership and performance simultaneously,[37] and

(c) The research results will extent empirical evidence of simultaneity between ownership structure and firm performance.

[37] See Agrawal/Knoeber [1996], Bohren/Odegaard [2003], Cho [1998], Demzets/Villalonga [2001], Gross [2007], and Loderer/Martin [1997].

In order to achieve the research objective, this thesis uses an agency framework to develop several testable hypotheses, as follows:

(a) First, the external block ownership model and managerial share ownership model identify the effect of these two variables on firm performance, respectively.

(b) Second, the research develops a model that incorporates the effects of firm performance on external block ownership and managerial share ownership with the level of debt as control variable, to look the effect of reverse causality and simultaneity between ownership structure and firm performance.

Table 5.5

The Hypotheses on Ownership Structures and Firm Performance

Hypothesis	Theory or argument	Causality
Hypothesis 7: Firms with a higher level of external block holdings and a higher debt ratio are likely to have higher firm performance, ceteris paribus.	• Agrawal and Knoeber (1996) • Loderer and Martin (1997) • Cho (1998) • Demsetz and Villalonga (2001) • Bohren and Odegaard (2003) • Gross (2007)	(Firm Performance) = f (external block ownership, D/E)
Hypothesis 8: Firms with low levels of managerial share ownership and higher debt are likely to have a higher firm performance, ceteris paribus.	• Agrawal and Knoeber (1996) • Loderer and Martin (1997) • Cho (1998) • Demsetz and Villalonga (2001) • Bohren and Odegaard (2003) • Gross (2007)	(Firm Performance) = f (managerial share ownership, D/E)
Hypothesis 9: Firms with higher debt and higher firm performance are likely to have a higher level of external block holdings, ceteris paribus.	• Agrawal and Knoeber (1996) • Loderer and Martin (1997) • Cho (1998) • Demsetz and Villalonga (2001) • Bohren and Odegaard (2003) • Gross (2007)	(External Block Ownership) = f (firm performance, D/E)
Hypothesis 10: Firms with higher debt and higher firm performance are likely to have low levels of managerial share ownership, ceteris paribus.	• Agrawal and Knoeber (1996) • Loderer and Martin (1997) • Cho (1998) • Demsetz and Villalonga (2001) • Bohren and Odegaard (2003) • Gross (2007)	(Managerial Share Ownership) = f (firm performance, D/E)
Hypothesis 11 ≡ Hypothesis 6: Firms with a higher level of external block holdings, low levels of managerial share ownership and a higher debt ratio are likely to have higher firm performance, ceteris paribus.	• Agrawal and Knoeber (1996) • Loderer and Martin (1997) • Cho (1998) • Demsetz and Villalonga (2001) • Bohren and Odegaard (2003) • Gross (2007)	(Firm Performance) = f (external block ownership, managerial share ownership, D/E)

CHAPTER 6

MODEL, METHODOLOGY AND DATA

This chapter includes the model and the methodology to use when this study is conducted. To deduct the model specifications, the following section first elaborates on crucial model issues in the ownership performance literature. Especially the endogeneity discussion in Section 6.1.2, it gives also justification of the estimation method used, the simultaneous equations, which is explained in Section 6.1.3. Furthermore, the methodology underlying the empirical study done in this thesis will be presented.

6.1 MODEL SPECIFICATIONS

6.1.1 Linearity and Monotonousness

One bias always present in economic literature is the model specification error. In the ownership and performance literature, there are several issues to be considered to minimize the potential model specification error and subsequent bias of results. This section elaborates on the treatment of different model specification issues in literature. Based on these discussions the models analyzed in this work are deducted.

In the ownership literature, a severe model specification error may lie in the assumed shape of the relationship. From the early studies in the 1960s until today, many studies have supposed a linear effect.[1] This surprises considering that a multitude of studies result in a nonlinear and even non-monotonous relation of ownership and performance, with the first indication given by Monsen et al. [1968].[2] Furthermore, the variety of contradicting effects argues also for a potential nonlinear relation. However, given the contradicting empirical evidence the exact shape is still unclear.

A frequently modeled shape of the effect of managerial ownership is given by Mørck et al. [1988]. They use a piecewise regression with two turning points of 5% and 25%, cutting the

[1] See Demsetz/Lehn [1985], Jacquemin/De Ghellinck [1980], Kamerschen [1968], Kamerschen/Paul [1971], Larner [1966], Leech/Leahy [1991], McEachern [1975], Mehran [1995], Murali/Welch [1989], Pedersen/Thomsen [1999], Radice [1971], Round [1976], Stano [1976], Steer/Cable [1978], and Thonet/Poensgen [1979].

[2] See Chen et al. [1993], Cho [1998], Cleary [2000], Cui/Mak [2002], Gugler et al. [2003b], Hermalin/Weisbach [1991], Holderness et al. [1999], Hubbard/Palia [1995], Kole [1996], McConnell/Servaes [1990, 1995], Monsen et al. [1968], Mørck et al. [1988], Short/Keasey [1999], Short et al. [2002a, 1994], Stulz [1988], Welch [2003], and Wruck [1989].

function in three parts. Many studies copy this approach and find a significantly positive relation of ownership and performance in the first range from zero to 5%.[3] Other adjust the range size such as Chen et al. [1993] and Cho [1998], who use a range from zero to 7%. Nevertheless, they still find evidence for a positive effect. The second part of the function is also proven significant by the majority of studies indicating a negative relation.[4] Chen et al. [1993] also alters the second turning point to 12% and Cho [1998] to 38%. Yet, both find a negative relation for their definition of the second piece of the function. However, for the last range of the function ending at 100% none of the studies finds significant evidence for an effect.

Figure 6.1 shows that the result is a two-parted function with a maximum potentially approximating a bell-shaped relation. If so, the results would concur with Stulz's [1988] hypothesis that assumes a parabolic relation. Stulz [1988] ranges the shape from zero to 50%, since the probability of a takeover vanishes at an insider ownership of theoretically 50% or higher. This high threshold may be exaggerated, since already a smaller share might guarantee the control over a firm. This holds especially under the condition of other entrenchment activities reducing the threshold. For example, Weston [1979] supports Mørck et al. [1988]'s lower threshold. He finds evidence that no hostile takeover has been observed with an insider ownership over 30%.

Besides the studies by Chen et al. [1993] and Cho [1998],[5] five further studies present significantly different turning points. Hermalin/Weisbach [1991] document a bell shape from zero to 5%, with a maximum at 1%. In contrast, Short et al. [1994] observe a positive effect from zero to 68% and a weakly significant and negative effect from 68% to 100%. The two studies by McConnell/Servaes [1990, 1995] produce similar results of a bell shape peaking at 50%. Finally, Short/Keasey [1999] use a third degree polynomial with a maximum at 16% and a minimum at 42%. Except for the latter, the assumed effect shapes are illustrated in Figure 6.1.

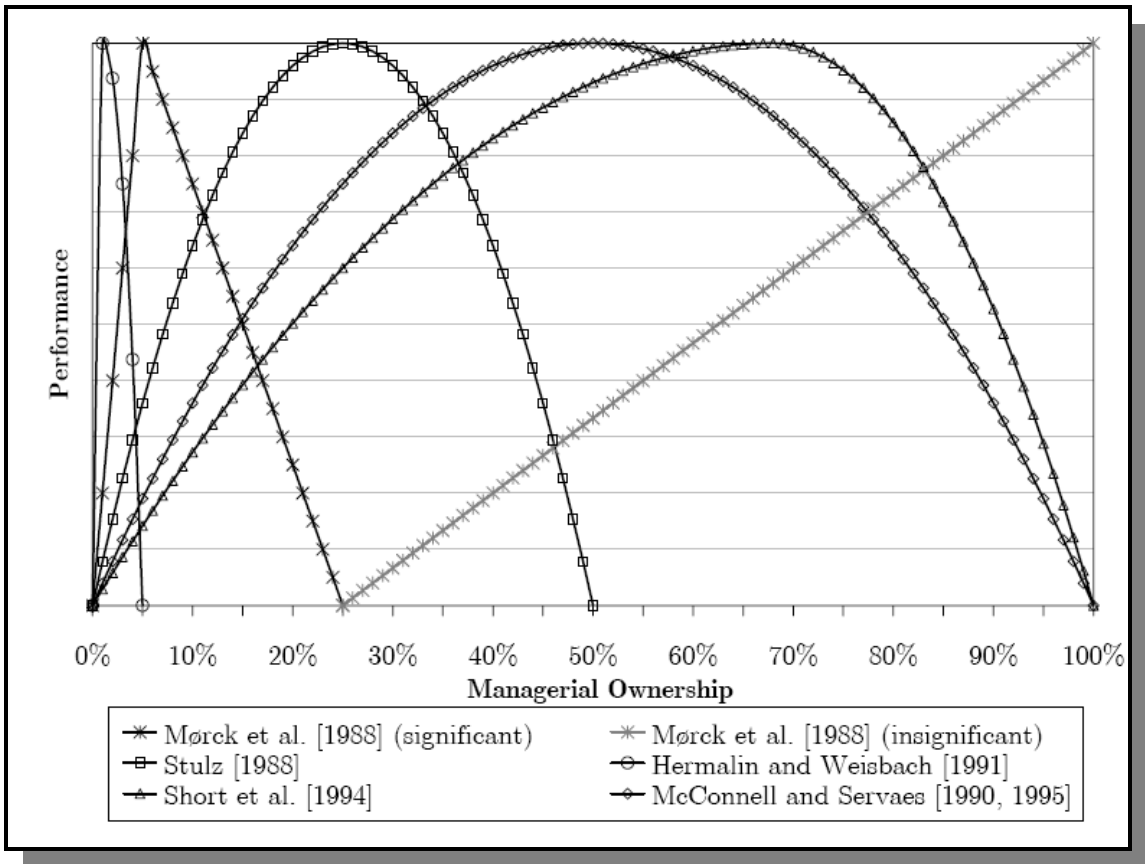
One explanation for the different thresholds is given by Mathiesen [2002]. He argues that larger firms have a bell closer to zero.[6] The dispersion of shareholdings is higher for large firms; thus, only a small share is needed for controlling the firm. The studies support this hypothesis. Hermalin/Weisbach [1991] consider a small sample of very large firms. In contrast, Short et al. [1994] use small firms and McConnell/Servaes [1990, 1995] use a large sample including both

[3] See Holderness et al. [1999], Hubbard/Palia [1995], Kole [1996], McConnell/Servaes [1990], Mørck et al. [1988], and Wruck [1989]
[4] See Hubbard/Palia [1995], Mørck et al. [1988], Wruck [1989] and Holderness et al. [1999] with their 1935 sample.
[5] Chen et al. [1993] and Cho [1998] change the threshold to 7% and 12% or 7% and 38% respectively
[6] See Mathiesen [2002, p. 33] and Kole [1995]

small and large companies. Furthermore, Kole [1995] analyzes the studies of Mørck et al. [1988] and McConnell/Servaes [1990], which are based on the same model, and concludes that the differences in the results are caused by such a size effect.

Figure 6.1

Comparison of Different Shapes of the Managerial Ownership – Performance Relation in Literature; Only Considering the Effect Direction Not the Strength



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 71.

Short/Keasey [1999] explain their deviating evidence by the scope of their study on the United Kingdom. The institutional differences cause a nation effect on the shape of the relation. In particular, they argue that US managers become more easily entrenched than UK managers do. The importance of national differences and their effect on the ownership structure and the corporate governance are also shown in comparative studies by La Porta et al. [1999] and Faccio/Lang [2002].

Another explanation for the differing results is the estimation method used. Studies using a squared ownership measure or a third degree polynomial assume that the shape fully ranges

from zero to 100%.[7] In contrast, a piecewise modeled function is flexible in its range and turning points. Due to its flexibility and its simple application the piecewise approach, it can not only proxy a third-degree polynomial but also more complex functions. Furthermore, high collinearity between simple and, for example, squared measures could cause a multicollinearity bias in polynomial functions, reducing significance of coefficients. However, in the case of an exact polynomial relationship in reality the fit of a piecewise model could be worse, since it assumes linear pieces and no curves. Yet, this case is not very likely regarding the multitude of possible functions. Therefore, the piecewise approach is preferable to complex polynomials.

6.1.2 Endogeneity, Simultaneousness and Causation

A further modeling aspect argued in the ownership performance literature is the issue of endogeneity and the direction of causation. Already the existence of hypotheses of effects in both directions argues for endogeneity and simultaneity within the ownership and performance relation and requires the incorporation of these effects. Bøhren/Ødegaard [2003] use the assumed mechanisms and the modeled causations to classify the existing research by the two-by-two matrix shown in Figure 6.2.[8]

Most of the studies belong to the first cell. They assume that ownership is exogenous and causation runs only in one way. Examples are Mørck et al. [1988] and McConnell/Servaes [1990], who analyze the effect of ownership on performance. Other studies prove the reverse direction of causation, from performance to ownership.[9]

Demsetz/Lehn [1985] founded the second generation, as they were the first to argue that in equilibrium the ownership structure is endogenously determined. Although ownership is viewed as endogenous, only one way of causation is modeled. Himmelberg et al. [1999] support the argumentation, but also does not consider both effect directions.

As a two-way causation model always implies the endogeneity of at least one mechanism, the third cell is not feasible.

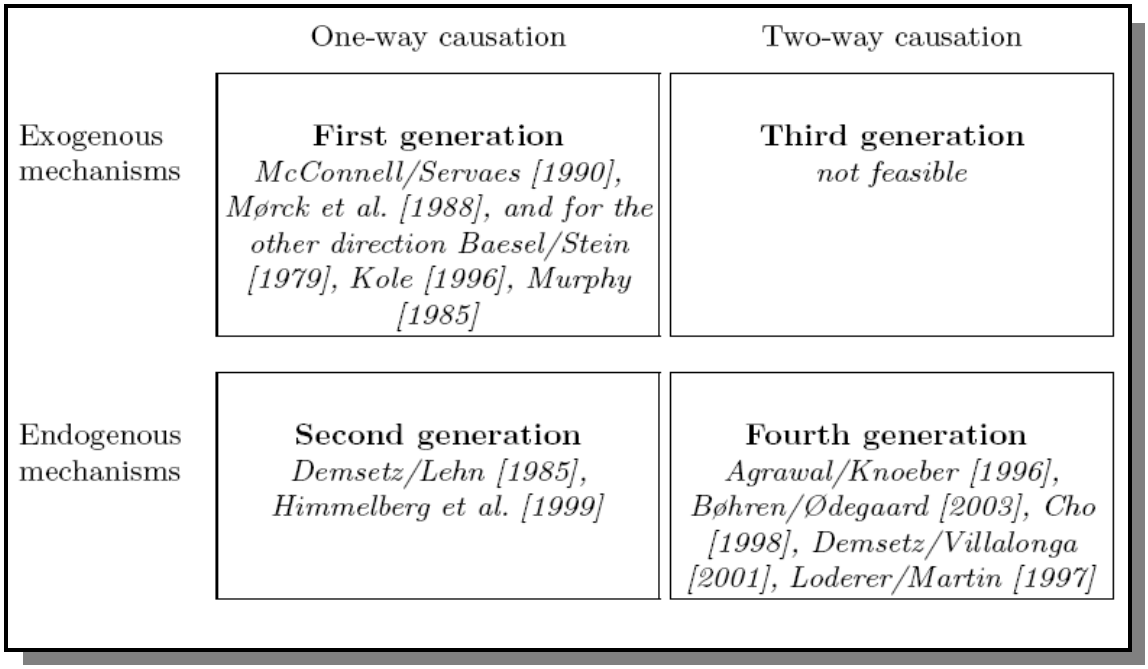
[7] Examples for a squared variable are McConnell/Servaes [1990, 1995], and Short et al. [1994]. The third-degree polynomial is applied by Short/Keasey [1999, p. 86]

[8] See Bøhren/Ødegaard [2003, pp. 7-8]

[9] See Baesel/Stein [1979], Demsetz [1986], Jaffe [1974], Kole [1996], Murphy [1985], Pope et al. [1990], Rozeff/Zaman [1988], Seyhun [1986], and Yermack [1996].

Figure 6.2

Classification of Studies Based on Endogeneity and Causation



Source: Gross, Kerstin [2007]. "Equity Ownership and Performance" First Edition, Physica-Verlag: Berlin, p. 76.

The last generation of studies models the endogeneity and two-way causation resulting in a simultaneous equations model. Only five studies of the fourth generation are known to the author: Agrawal/Knoeber [1996], Bøhren/Ødegaard [2003], Cho [1998], Demsetz/Villalonga [2001], and Loderer/Martin [1997]. While Agrawal/Knoeber [1996] do not give information about the causation, the others find interesting new evidence. The approaches of the first and fourth generation applied on the same data produce tremendously different results. For example, Cho [1998] finds an effect of ownership on performance in the ordinary least squares (OLS) model. In contrast, the simultaneous equation model indicates the reverse causation running from performance to ownership and leaving the traditional effect of ownership on performance in-significant.

This example illustrates the bias resulting from lacking consideration of existing endogeneity. The so-called simultaneous equations bias yields in confused directions of causation and/or inconsistent estimates. Consequently, the results of the studies of the first and second generation have to be questioned.[10]

[10] See Mathiesen [2002, p. 47]

Therefore, a test for simultaneity of effect, such as a Hausman test, appears necessary to exclude the possibility of an endogeneity bias. This test is conducted by only two studies: Hermalin/Weisbach [1991] reject the hypothesis of simultaneity justifying its neglect.[11] In contrast, Himmelberg et al. [1999] find simultaneity, but do not reflect it in their model leaving their results questionable.[12] Consequently, due to the different facts arguing for simultaneity of ownership and performance endogeneity should not only be tested but it should further be incorporated in the resulting model, if statistically proven.

Furthermore, not only performance and ownership may suffer from the simultaneity bias, but also the different ownership types themselves as indicated by their interaction stated by theory. Especially the substitution effect of agency devices by Jensen/Meckling [1976] and Jensen [1986] argues for an interdependence of the ownership aspects, such as block ownership, institutional ownership, and managerial ownership. Since these ownership types are theoretically agency devices, they influence each other's cost-efficiency and hence the extent of their usage. Thus, the simultaneous model has to be extended to the different agency devices and ownership aspects.

Hermalin/Weisbach [1991] examine the interactions of managerial ownership and board composition, while Crutchley/Hansen [1989] and Jensen et al. [1992] simultaneously consider the effects of managerial ownership, debt, and dividend policy. Moyer et al. [1992] consider even more monitoring mechanisms: board composition, insider and institutional ownership, analyst following as well as debt and dividend policy. Yet, they do not study them in a simultaneous setting. Holthausen/Larcker [1993] are the first to introduce performance as further endogenous variable analyzing the effects of managerial ownership, capital structure policy, and performance. Agrawal/Knoeber [1996] combine the approaches of Moyer et al. [1992] and Holthausen/Larcker [1993] by first modeling insider and institutional ownership, block holding, debt policy, board composition, and CEO tenure simultaneously. In a second step, they analyze the effects on firm performance. Yet, they do not study the several ownership forms simultaneously with performance as endogenous variable in order to consider both the endogeneity between ownership and performance and that of ownership itself.

In this thesis, a simultaneous equations model assuming the performance as well as the different ownership forms as exogenous allows the consideration of ownership interactions and the clear separation of their effects on performance. Consequently, the model applied in this work picks up

[11] See Hermalin/Weisbach [1991, p. 106]
[12] See Himmelberg et al. [1999, p. 373]

this thought by forming five hypotheses with both performance and the different ownership aspects as exogenous, interdependent variables.

6.2 SAMPLE SELECTION AND VARIABLE USED

In order to investigate the relationship between the structure of equity ownership and corporate financing policies, a range of data are needed. The countries studied in this thesis are Indonesia, South Korea, Malaysia, the Philippines, Thailand, Hong Kong, and Taiwan, the seven countries that were involved in the East Asian Financial crisis. Although other East Asian countries (and other emerging markets outside Asia) were affected by the crisis, the five of those seven countries considered here suffered disproportionately in terms of stock market decline and currency depreciation (see Table 6.1 and Figure 6.3).

Table 6.1

Five East Asian Countries – Crisis Statistics

Crisis Statistics	All Countries	Indonesia	South Korea	Malaysia	Philippines	Thailand
Crisis-period stock return of sample firms	-68.7%	-73.6%	-67.1%	-79.0%	-58.3%	-52.1%
(Median)	-79.2%	-84.5%	-74.2%	-87.0%	-63.4%	-57.9%
Crisis period currency depreciation		-78.0%	-34.5%	-39.8%	-39.8%	-41.1%

Source: Todd Mitton (2001)

Therefore, for the companies included in this research sample, it is set some criteria, as follows:

(1) each firm must have financial data reported in the Worldscope database, which is the primary data source used in this study,

(2) the primary business segment of each firm must not be in financial services, that is, not in standard industrial classification (SIC) 6000 – 6999,

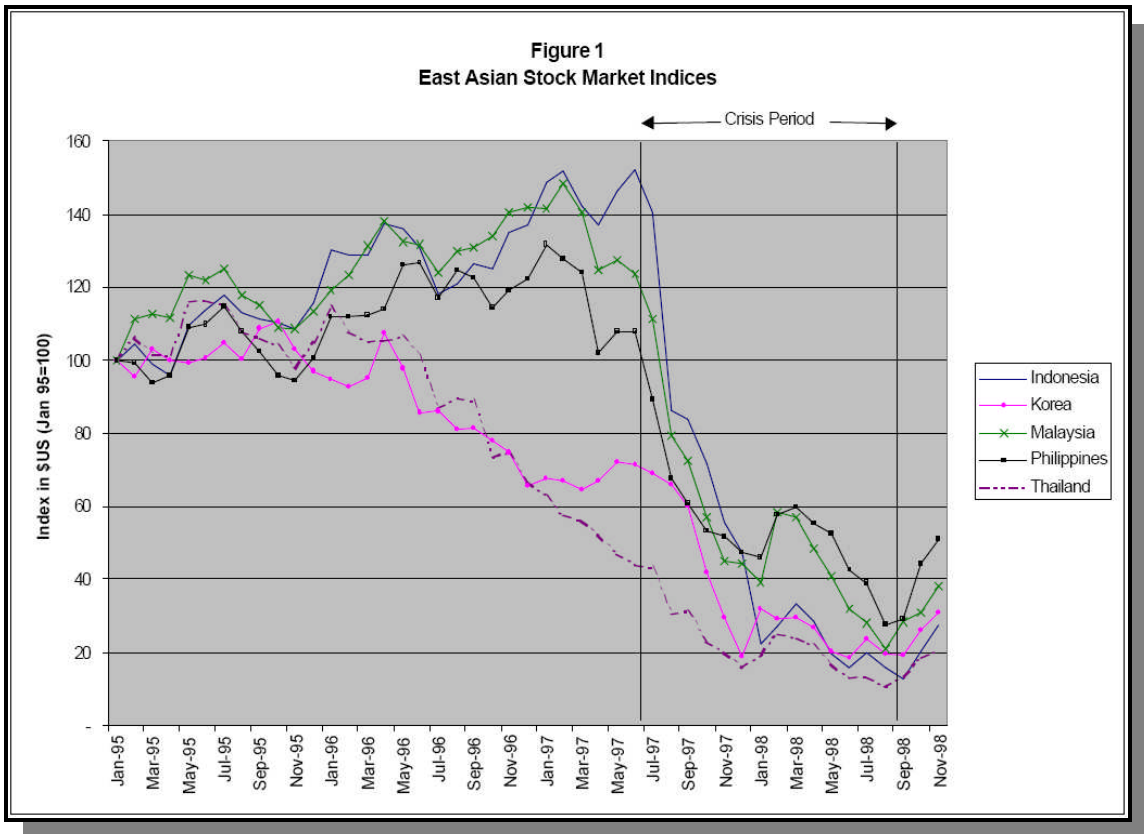
(3) each firm must be identified in Worldscope as being included in the International Finance Corporation (IFC) global index. The IFC includes firms in the global index only if they are among the largest and liquid firms in a given market.

The sample selection process is outlined in Table 6.2. The final sample consists of 532 firms from the eight crisis countries. In general, the sample is representative of larger firms that trade on the major stock exchange of each country. Small listed firms and other unlisted firms, including large multinationals with no local listing (which can make significant contributions to GDP) are not represented in the sample. Table 6.3 shows that Korea has the most firms in the sample, with 232 firms, and Taiwan has the fewest, with 19 firms. The median size of firms, in terms of total assets, also varies, with Taiwan having the largest (a median size of over $545.10 million)

and Indonesia is the smallest (a median size of over $94.24 million). The average proportion of firms' capital structure, in terms of debt ratio, also varies, with Indonesia having the largest (an average size of over 70.06%) and Malaysia is the smallest (an average size of over 43.76%)

Figure 6.3

East Asian Stock Market Indices



Source: Todd Mitton (2001)

Time horizon

The reason for choosing the time horizon 2000 - 2001 is mainly that the period of post-2000 is believed as the period of recovery of the crisis. The research chooses to 2-years observation due to the fact and intention to portrait the post Asian financial crisis environment. In addition, the 2-years observation is hoped to be able to give enough information of the relationship between ownership structure and firm performance at the time of emerging East Asian Capital Market.

Population

The research considers the population of the study to be all non-regulated firms where the companies involved are listed on the stock market within one of East Asian Capital Market, such

as Jakarta Stock Exchange (JSX – Indonesia), SET (Bangkok - Thailand), KLSE (Kuala Lumpur - Malaysia), KRX (Seoul - Korea), PSE (Manila - Philippines), SEHK (Hong Kong), and TSEC (Taipei – Taiwan), and the time period chosen. For each sample firm, the following items are collected:

(a) the share ownership of the top two, top five and all directors. This includes both executive and non-executive directors;

(b) the share ownership of the top 10 largest shareholders; and

(c) the distribution of shareholders and their holdings.

The sources that have been used to find the required data are Thomson One Banker, Worldscope, and DataStream.

Table 6.2

Sample Selection Process

1. Initial sample (companies, which are listed in JSX (Jakarta), SET (Bangkok), KLSE (Kuala Lumpur), SSE (Seoul), PSE (Manila), SEHK (Hong Kong), and TSEC (Taipei – Taiwan) during 2000 – 2001, have passed the SIC screen)	1633
2. Exclude the companies that have not complete ownership data to determine the external block holders and managerial share ownership	(460)
3. Removed from the sample because an incomplete data, such as intangible assets and long-term debt	(641)
4. Final sample	**532**

I supplement the Worldscope data with ownership information from the Asian Company Handbook 2000, Hong Kong Company Handbook 2000, the Handbook of Indonesian Companies 2000, the Philippine Stock Exchange Investments Guide 2000, and the Securities Exchange of Thailand Companies Handbook 2000 to complete the ownership profiles of the sample (Table 6.3). I exclude companies which that proxy ownership that cannot be traced to a specific owner. In all cases, I collect the ownership structure as of December 2000 or the end of the 2000 fiscal year (March 2001).

In Table 6.3, it is presented summarily the transaction characteristics. It includes some important characteristics, such as financial statistics (total assets and debt ratio), ownership structures (external block ownership and managerial ownership), and sample inclusion.

Table 6.3

Sample Characteristics

Summary Statistics	All countries	Hong Kong	Indonesia	Korea	Malaysia	Philippines	Taiwan	Thailand
Financial Statistics								
Total Assets (millions USD)	8390.11	3551.89	246.77	1597.92	343.68	560.12	1597.85	491.88
Maximum		80641.09	2640.28	51738.39	3492.71	3045.39	11010.70	5542.25
Minimum		45.56	9.12	9.24	12.12	51.43	67.47	11.66
Median		258.33	94.24	248.10	158.37	217.23	545.10	181.81
Debt Ratio	50.79%	54.38%	70.06%	46.57%	43.76%	45.37%	43.83%	51.59%
Maximum		141.26%	175.60%	454.24%	320.16%	88.13%	101.17%	128.71%
Minimum		0.07%	2.24%	0.33%	0.001%	0.00047%	5.51%	0.012%
Ownership Structure								
External Block Ownership	56.28%	55.55%	63.25%	30.12%	54.48%	86.65%	38.60%	65.35%
Maximum		91.43%	97.33%	94.93%	89.52%	99.89%	86.54%	99%
Minimum		14%	9.92%	0.08%	8.23%	36.64%	0.31%	5.33
Managerial Ownership	9.37%	10.88%	1.27%	12%	10.78%	1.13%	21.79%	7.76%
Maximum		60.77%	17.31%	51.95%	63.89%	6.85%	84.10%	59.77
Minimum		0%	0%	0%	0%	0%	0%	0%
Sample Inclusion								
Number of firms in Worldscope	1633	179	139	486	318	73	86	106
Number of firms for final sample	532	32	39	232	139	25	19	46

6.2.1 Ownership Variables

All ownership measures used in these analyses refer to cohesive shareholding, since both direct and indirect ownership influence the control ability and the incentive structure of the owner. To measure the ownership concentration (external block holders) that should reproduce the existence and power of a controlling shareholding, the control rights of the 10 largest shareholders are used in the variable *external block ownership* (EBO). The extension of the concentration measure to further shareholders by using for example the share of the three largest shareholders is discarded for two reasons. First, the existence of concentration effects, such as private benefits, depends mainly on the largest shareholder. Indeed, it is possible that large shareholders form alliances to conjointly exploit potential benefits. However, as explained in Section 5.3.1, the probability of shareholder coalitions and therefore, the necessity of shareholder aggregation by concentration measures depend on the general level of concentration present in the market.

Similarly, the total of insider shares is applied with managerial share ownership (MSO) being the sum of control rights owned by managers. It is done to examine the effect of the insider definition, which is the combined ownership of management and board. In addition, since the ownership variables were not extracted from an existing database but collected within the scope of this work and crosschecked, the probability of recording error is low. Therefore, no data processing is applied to avoid an information reduction. Table 6.4 gives an overview the used variable used and their definition.

Table 6.4

Definition of Ownership Variables

Variable Name	Definition
Ownership Concentration	
External Block Ownership (EBO)	Sum of the control rights of the 10 largest external shareholders (in percent)
Insider Ownership	
Managerial Share Ownership (MSO)	Sum of the control rights of management and board (in percent)

6.2.2 Capital Structure and Financial Performance Variables

Based on the discussion on financial performance measures in Section 2.3 the following empirical analyses use the Tobin's Q estimated through the Chung/Pruitt [1994] approach as main performance variable. The only change made is in the treatment of preferred stocks, where the liquidation value is replaced by the stock price.[13] Furthermore, robustness checks will test the effect of the usage of hybrid measures compared to the frequently used accounting-based variable. The ROE is used as alternative accounting-based performance measure, with the income definition including income from ordinary and extraordinary activities and excluding non-operating income.

Table 6.5 gives an overview over the variable definitions. Furthermore, Table 6.6 states the applied rules for data processing. It serves as plausibility check reducing biases caused by measurement or reporting errors in the variables that might produce inconsistent estimates. The data processing rules are derived from natural boundaries or from the definition of highly suspect outliers by the inter-quartile range (IQR). The IQR is the range between the lower and upper

[13] This change was also made by Gugler et al. [2004, p. 18]

quartiles. Values in the inner fences, located at a distance of 1.5 * IQR below the lower and above the upper quartiles, are not problematic. The outer fences at a distance of 3 * IQR distinguish values into suspect outliers, lying inside the fences, and highly suspect outliers outside the range.

A definition as highly suspect outlier results in a change of the affected value by setting it equal to the outer fence. This approach is called winsorizing and is based on the assumption that outliers are not completely false but exaggerated. The alternative of labeling them as missing values is problematic and a deletion of the observations could significantly reduce the sample size. Both method results in a loss of potentially valuable information and could force a truncation error. Thus, the concept of winsorizing is preferred over excluding affected values.[14]

Table 6.5

Definition of Capital Structure and Financial Performance Variables

Variable Name	Definition
Hybrid Performance Measures	
Q (Tobin's Q)	Sum of market value of stock, book value of inventories, long-term debt and current liabilities minus current assets divided by total assets
Accounting-based Performance Measures	
ROE (Return On Equity)	Net earnings after interest expenses and taxes divided by shareholders equity
Capital Structure	
Debt-to-Equity ratio (D/E)	Total debt (long-term debt and short-term debt) divided by shareholders equity

6.3 RESEARCH MODEL AND VALIDITY TEST

Five research models are developed to test 11 hypotheses. In order to test the validity of the models, this thesis conducts three classical regression validity tests; there are multicollinearity, autocorrelation, and heteroscedasticity [Gujarati 2003].

6.3.1 Model I

Since the underlying hypothesis is that capital structure is a function of the distribution of equity ownership among managers and external block holders, the firm's debt to equity ratio is

[14] This practice modifies outliers by making them no more extreme than the most extreme data that is believed to be relevant or accurately measured. This method is for example applied by Demsetz/Villalonga [2001].

regressed on various measures of ownership structure (and other control) variables. The first hypothesis proposes that firms with higher levels of external block holdings will have higher leverage. This hypothesis is tested by regressing the dependent variable, ln (D/E) against the external block ownership (EBO) and control variables:

$$\mathbf{Ln\ (D/E)_{it}} = \alpha_0 + \beta_0\ \mathbf{EBO_{it}} + \beta_1\ \mathbf{SIZE_{it}} + \beta_2\ \mathbf{IND_{it}} + \beta_3\ \mathbf{GROWTH_{it}} + \beta_4\ \mathbf{PROF_{it}} + \beta_5\ \mathbf{FCF_{it}} + \beta_6\ \mathbf{INTA} + \beta_7\ \mathbf{NDTS} + \mathbf{e_{it}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad \mathbf{(1)}$$

where:

it	= the *i*-th firm in period *t*
Ln (D/E)	= natural log transformation of Debt/Equity ratio
EBO	= percentage of ordinary shares held by the larger shareholders. Data for the top two, five, and 20 external shareholders are used as the proxy for external block ownership.

Sensitivity analysis is conducted on the impact of the top 10 external shareholders. Friend/Lang [1988] use a dummy variable to represent the existence of external block shareholders with a holding of 10% or more of a firm's outstanding stock. This thesis extends Friend/Lang [1988] by using the proportion of outstanding shares owned by external block holders.

The two variables used to control for risk are:

SIZE = natural log (total assets). Many studies suggest that firm size is one important factor, which affects a firm's debt policy and therefore risk.[15] This variable is expected to have a positive coefficient as larger more diversified firms are likely to have a lower risk of bankruptcy and can sustain a higher level of debt.[16]

IND = zero-one dummy variable for industry classification, where IND = 1 if industrial company and IND = 0 if natural resources company. A more detailed industrial classification is not used because the increase in the number of dummy variables imposes too severe restriction on the degrees of freedom in the regression. It is argued that industry class is a potential determinant of capital structure because firms, in the same industry, face similar demand and supply conditions, and thus have similar risk characteristics.[17]

[15] See Scott/Martin [1975], Ferri/Jones [1979], Agrawal/Nagarajan [1990].
[16] See Scott/Martin [1975], Ferri/Jones [1979]
[17] See Scott/Martin [1975], Ferri/Jones [1979]

To some extent, the industry variable may also capture some of the effects of the "free cash flow" theory advanced by Jensen [1986]. Jensen identifies some industries with significant potential for free cash flow abuses. However, I include a specific variable, (below) for free cash flow to isolate these effects.

The three variables used to control for agency costs are:

GROWTH = the annual percentage change in total assets. Titman/Wessels [1988] suggest that a firm's growth opportunities are a good proxy for the agency costs of debt. They suggest that the tendency to invest sub-optimally to expropriate wealth from a firm's debt holders is likely to be higher for firms in growing industries. On the other hand, growth may also be an indicator of profitability and success of the firm. If this is the case, GROWTH will be a proxy for available internal funds. If a firm is successful and earning profits, there should be sufficient internal funds available for investment. This may then be associated with Myers/Majluf [1984] "pecking order" theory, which suggests a negative coefficient on the GROWTH variable. Further, McConnell/Servaes [1995] suggest that the agency relationship induced by managerial share ownership differs between high and low growth firms.

FCF = OYBT + DEP + AMO - TAXPAID - DI VPAID

where:

OYBT	=	operating income before income tax
DEP	=	depreciation expense
AMO	=	amortization separately reported, such as goodwill
TAXPAID	=	total tax paid
DIVPAID	=	total dividends paid

FCF is a direct measure of Jensen's [1986] free cash flow hypothesis. The free cash flow hypothesis states that managers endowed with excessive free cash flows will invest sub-optimally rather than paying the free cash flow out to shareholders. Jensen [1986] predicts that firms with excessive free cash flow are likely to have higher leverage. FCF is defined in a similar manner to Lehn/Poulsen [1989].

PROF = operating income before interest and taxes scaled by total assets. Indicators of a firm's profitability include ratios of operating income over sales and operating income over total

assets[18] and ratios of average earnings before interest and taxes over total assets.[19] Using a modified version of the "pecking order" hypothesis, Myers/Majluf [1984] relate profitability to capital structure by suggesting that firms that are more profitable will demand less debt because internal funds are available for finance. Since profitable firms have more earnings available for retention, these firms tend to build their equity relative to their debt. A number of empirical studies have examined the effect of profitability on firm leverage, including Friend/Lang [1988]. Generally, these studies find a negative association between profitability and leverage.

The variable used to control for asset specificity is:

$$\textbf{INTA} = \frac{\textbf{Total Intangibles}}{\textbf{Total Assets}}$$

Balakrishnan/Fox [1993] argue that asset specificity creates problems for debt financing due to the non-redeploy ability characteristics of specific assets. More specifically, asset specificity adversely affects a firm's ability to borrow. Balakrishnan/Fox [1993] suggest that examples of firm-specific assets are intangible assets such as brand names, research and development expenditure and other reputational investments. The INTA variable may also capture a firm's discretionary investment opportunities. Myers [1977] argues that agency costs associated with intangibles assets are higher than those associated with tangible assets did. To the extent that INTA picks up this effect, it will be negatively related to the D/E ratio.

The last explanatory variable is used to control for the effect of taxes:

$$\textbf{NDTS} = \frac{\textbf{Annual Depreciation Expense}}{\textbf{Total Assets}}$$

NDTS variable is used to capture the non-debt tax shield's argument put forward by DeAngelo/Masulis [1980]. They argue that the greater the level of non-debt tax shields, the lower is the benefit of additional debt. Thus, all else equal, firms with higher non-debt tax shields are expected to receive lower tax benefits from issuing debt and therefore will utilize less debt. DeAngelo/Masulis's [1980] argument therefore implies a negative relation between non-debt tax shields and the D/E ratio.

[18] See Titman/Wessels [1988]
[19] See Wald [1995]

6.3.2 Model II

To test for the hypothesized curvilinear relationship between managerial share ownership and capital structure, the managerial share ownership variable and the square of managerial share ownership variable is augmented to the regression model:

$$\mathbf{Ln\ (D/E)_{it}} = \alpha_0 + \beta_0\ \mathbf{MSO_{it}} + \beta_1\ \mathbf{(MSO)^2_{it}} + \beta_2\ \mathbf{SIZE_{it}} + \beta_3\ \mathbf{IND_{it}} + \beta_4\ \mathbf{GROWTH_{it}} + \beta_5\ \mathbf{PROF_{it}} + \beta_6\ \mathbf{FCF_{it}} + \beta_7\ \mathbf{INTA_{it}} + \beta_8\ \mathbf{NDTS_{it}} + \mathbf{e_{it}} \quad \ldots\ldots\ldots\ldots \quad \mathbf{(2)}$$

where:

MSO = percentage of ordinary shares owned by all executive and non-executive directors. Share ownership of corporate directors is used by Morck et al. [1988] and Keasey et al. [1994], amongst others to proxy for managerial share ownership.

Other variables are as previously described in Section 6.3.1.

6.3.3 Model III

In Model III, a joint test is used to investigate the third and fourth hypotheses, which explore the relationship between external block ownership and leverage at different levels of managerial share ownership. Specifically, the third hypothesis predicts that external block ownership and debt are positively related when the level of managerial share ownership is low. The fourth hypothesis predicts that at high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is less significant than at low levels of managerial share ownership, since the positive monitoring effect of external block ownership is offset by the negative entrenchment effect associated with managerial share ownership.

To test these two hypotheses, a dummy variable D, denoting different levels of managerial share ownership is employed. D takes the value of 0 if the level of managerial share ownership is less than 20%. When managerial share ownership is 20% or more D takes the value of 1. While there is generally little theoretical justification for the particular cut-off, the 20% level has been used in several previous studies. For example, Hermalin/Weisbach [1991] find that the entrenchment effect of managerial share ownership sets in after 20% of managerial share ownership.

The natural log of D/E is then regressed against MSO, MSO^2, EBO, D*EBO and the control variables:

$$\mathbf{Ln\ (D/E)_{it}} = \alpha_0 + \beta_0\ \mathbf{MSO_{it}} + \beta_1\ \mathbf{(MSO)^2_{it}} + \beta_2\ \mathbf{EBO_{it}} + \beta_3\ \mathbf{(D*EBO)_{it}} + \beta_4\ \mathbf{SIZE_{it}} + \beta_5\ \mathbf{IND_{it}} + \beta_6\ \mathbf{GROWTH_{it}} + \beta_7\ \mathbf{PROF_{it}} + \beta_8\ \mathbf{FCF_{it}} + \beta_9\ \mathbf{INTA_{it}} + \beta_{10}\ \mathbf{NDTS_{it}} + \mathbf{e_{it}} \quad \text{.....} \quad \mathbf{(3)}$$

The coefficient on the EBO variable reflects the relation between external block ownership and the debt level when the level of managerial share ownership is low.

The coefficient on the $D*EBO_{it}$ variable then reflects the difference in the external block ownership and leverage relationship between high and low levels of managerial share ownership.

In order to infer the relationship between external block ownership and leverage at high levels of managerial share ownership, the coefficient β_3 is added to the coefficient β_2. In other words, the sum of β_2 and β_3 gives the slope for the relationship between external block ownership and leverage when the level of managerial share ownership is high.

6.3.4 Model IV

In Model IV, a joint test is used to investigate the fifth and sixth hypotheses, which explore the possibility of non-monotonic and endogeneity relationship of capital structure and firm performance. The prior researches generally do not take into account the possibility of reverse causation from performance to capital structure. If firm performance affects the choice of capital structure, then failure to consider this reverse causality may result in simultaneous-equations bias. That is, regressions of firm performance on a measure of leverage may confound the effects of capital structure on performance with the effects of performance on capital structure.

In both of hypotheses, ownership structure (external block ownership and managerial share ownership) is used to see the simultaneity of combined effect of ownership concentration and insider ownership on performance. Therefore, the sixth hypothesis is equal to the eleventh hypothesis, which has the same function as intended in Chapter 5 (Ownership Structure and Firm Performance). Consequently, the test of combined effect of ownership concentration and insider ownership on performance will be done as well as the test of capital structure effect on performance.

$$\text{Ln } (D/E)_{it} = \alpha_0 + \beta_0 TQ_{it} + \beta_1 ROE_{it} + \beta_2 MSO_{it} + \beta_3 (MSO)^2_{it} + \beta_4 EBO_{it} + \beta_5 (D*EBO)_{it} + \beta_6 SIZE_{it} + \beta_7 IND_{it} + \beta_8 GROWTH_{it} + \beta_9 PROF_{it} + \beta_{10} FCF_{it} + \beta_{11} INTA_{it} + \beta_{12} NDTS_{it} + e_{it} \quad \text{.....} \quad (4)$$

$$\text{Tobin's } Q_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 MSO_{it} + \beta_2 (MSO)^2_{it} + \beta_3 EBO_{it} + \beta_4 (D*EBO)_{it} + \beta_5 SIZE_{it} + \beta_6 IND_{it} + \beta_7 GROWTH_{it} + \beta_8 PROF_{it} + \beta_9 FCF_{it} + \beta_{10} INTA_{it} + \beta_{11} NDTS_{it} + e_{it} \quad \text{.....} \quad (5)$$

$$ROE_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 MSO_{it} + \beta_2 (MSO)^2_{it} + \beta_3 EBO_{it} + \beta_4 (D*EBO)_{it} + \beta_5 SIZE_{it} + \beta_6 IND_{it} + \beta_7 GROWTH_{it} + \beta_8 PROF_{it} + \beta_9 FCF_{it} + \beta_{10} INTA_{it} + \beta_{11} NDTS_{it} + e_{it} \quad \text{.....} \quad (6)$$

If firm performance affects the choice of capital structure and vice versa, then the failure to take this into account may result in serious simultaneity bias, with important implications for pattern of firm financing and performance.

6.3.5 Model V

In Model V, a joint test is used to investigate the seventh until the eleventh hypotheses, which explore the endogeneity or simultaneous equations bias that is very likely to exist in analyses of ownership and performance. As theory contains effects for both directions, from ownership on performance and vice versa, it supports the assumption of simultaneous reciprocal determination of ownership and performance. Although the endogeneity was already addressed by Demsetz/Lehn in 1985 and is widely accepted by researchers, it is rarely modeled in empirical studies.

To model the hypotheses, five equations will be tested:

$$\text{Tobin's } Q_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 EBO_{it} + \beta_2 (D*EBO)_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (7)$$

$$ROE_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 EBO_{it} + \beta_2 (D*EBO)_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (8)$$

$$\text{Tobin's } Q_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 MSO_{it} + \beta_2 (MSO)^2_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (9)$$

$$ROE_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 MSO_{it} + \beta_2 (MSO)^2_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (10)$$

$$EBO_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 TQ_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_4 GROWTH_{it} + \beta_5 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (11)$$

$$EBO_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 ROE_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_4 GROWTH_{it} + \beta_5 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (12)$$

$$MSO_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 TQ_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_4 GROWTH_{it} + \beta_5 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (13)$$

$$MSO_{it} = \alpha_0 + \beta_0 (D/E)_{it} + \beta_1 ROE_{it} + \beta_2 SIZE_{it} + \beta_3 IND_{it} + \beta_4 GROWTH_{it} + \beta_5 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it} \quad \text{.....} \quad (14)$$

6.3.6 Model Validity Test

A. Multivariate regression method to find the influence of independent variable

The thesis carries out a multivariate regression to assess the relationship between the structure of equity ownership, corporate financing policies, and firm performance. The dependent variable

is (1) the debt/equity ratio (D/E), and is defined as the natural logarithm of the ratio of the book value of debt (D_{BV}) to market value of equity (E_{MV}), (2) firm performance measures, there are Tobin's Q and ROE, and (3) ownership structure. Equity is defined as market value of equity. Book value of debt is used as a proxy for market value of debt due to problems in estimating market values of unlisted debt securities. Many studies have used book value of debt in measuring leverage (as examples see Friend/Lang [1988] and Titman/Wessels [1988]). Bowman [1980] argues that even if the market value of debt is a more accurate measure of leverage, the use of book value of debt is not expected to distort leverage ratios. The natural log transformation of D/E is used to mitigate possible problems with the sample distribution of the ratio.

Six sets of explanatory variables are included in an attempt to capture different effects. The first set of explanatory variables comprises the ownership variables. Since a firm's capital structure is likely to be affected by many factors other than the allocation of equity ownership, the remaining four sets of variables are included in an attempt to control for these other effects. These variables are used to "isolate" the effects of the equity ownership on capital structure and include risk (two variables), agency cost (three variables), asset specificity (one variable) and tax (one variables).

B. The test of multivariate regression model validity

In order to make sure that the multivariate regression model is valid, the thesis will conduct three classical regression validity tests, there are multicollinearity, autocorrelation, and heteroscedasticity [Gujarati 2003].

1. Multicollinearity test

The multicollinearity test is used to find any linear relationship amongst explanatory variables in a regression model. It can affect two or more of them. The correlation can be negative or positive. In the presence of multicollinearity, the estimate of one variable's impact on y while controlling for the others tends to be less precise than if predictors were uncorrelated with one another. To detect multicollinearity in this thesis, it is used *Variance Inflation Factor* (VIF) of each independent variable. If the VIF of a variable exceeds 10, which will happen if R_j^2 exceeds 0.90, that variable is said be highly collinear.

2. Autocorrelation test

Autocorrelation test is done to find whether there is a correlation among disturbance term. Autocorrelation of the residuals (error terms) is a problem, and leads to an upward bias in estimates of the statistical significance of coefficient estimates, such as the t statistic. In this thesis, the autocorrelation test for the presence of first-order autocorrelation is the Durbin-Watson statistic. From the Durbin-Watson table is derived the critical values of d_l and d_u, with criteria as follows:

1. If $d < d_l$ or $(4- d_l) < d$, there is statistically autocorrelation.
2. If $d_l \leq d \leq d_u$ or $(4- d_u) \leq d \leq (4- d_l)$, the test is neutral.
3. If $2 < d < (4- d_u)$ or $d_u < d < 2$, there is not statically autocorrelation in regression model.

In order to cure the autocorrelations symptoms, in this thesis, it will be used Cochran-Orcutt Method, as follows:

1. Determine the residual value of regression model and define its residual lag.
2. Transform all variable (dependent and independent variables) into new lag first order variables.
3. Determine the correlation sensitivity coefficient between residual and its lag by regressing residual with its lag variable.
4. Transform the variables to get new variables by using formula "X – (sensitivity coefficient * lag X).
5. Do regression of new independent variables to new dependent variables, in order to get an equation with DW value that is free from autocorrelation.

3. Heteroscedasticity test

When using some statistical techniques, such as ordinary least squares (OLS), a number of assumptions are typically made. One of these is that the error term has a constant variance. This will be true if the observations of the error term are assumed to be drawn from identical distributions. Heteroscedasticity is a violation of this assumption. To detect the existence of heteroscedasticity, in this thesis, it will be used Spearman's Rank Correlation Test, as follows:

1. Calculate the residual value of the regression equation, then its value is changed to be absolute value.
2. Determine the existence of heteroscedasticity by testing the significance of Spearman's Rank Correlation between the absolute residual values with independent variables.

6.4 CONCLUDING REMARKS

In general, the research will use all relevant data of 532 companies in eight countries (Indonesia, Korea, Malaysia, the Philippines, Thailand, Hong Kong, and Taiwan) as a final sample and it will be done in three steps. First step will test the first hypothesis, to find whether firms with higher levels of external block holdings will have higher leverage. This step tests the underlying hypothesis that capital structure is a function of the distribution of equity ownership among managers and external block holders.

Second step will test the curvilinear relationship between managerial ownership and capital structure. Third step will explore the relationship between external block ownership and leverage at different levels of managerial share ownership. Fourth step will analyze the relationship between capital structure (leverage) and firm performance. This step tests associated arguments that are an extension of Berger/di Patti's [2002] investigation, which offer two hypotheses of reverse causation based on violations of the Modigliani-Miller perfect-markets assumption. This step becomes important because it does not only allow for simultaneity between capital structure and firm performance, but also the non-linearity in these relationships. Fifth step as the final step will not only allow for simultaneity between ownership structure and firm performance, but also it tests the endogeneity of performance in this relationship.

The five steps will be done by using multiple regression method to find the influence of independent variable, as follows:

- External Blockholders Ownership (variable)
- Managerial Shares Ownership (variable)
- Difference External Blockholder Ownership (variable)
- Debt ratio (variable)
- Tobin's Q (variable)
- Return On Equity (variable)

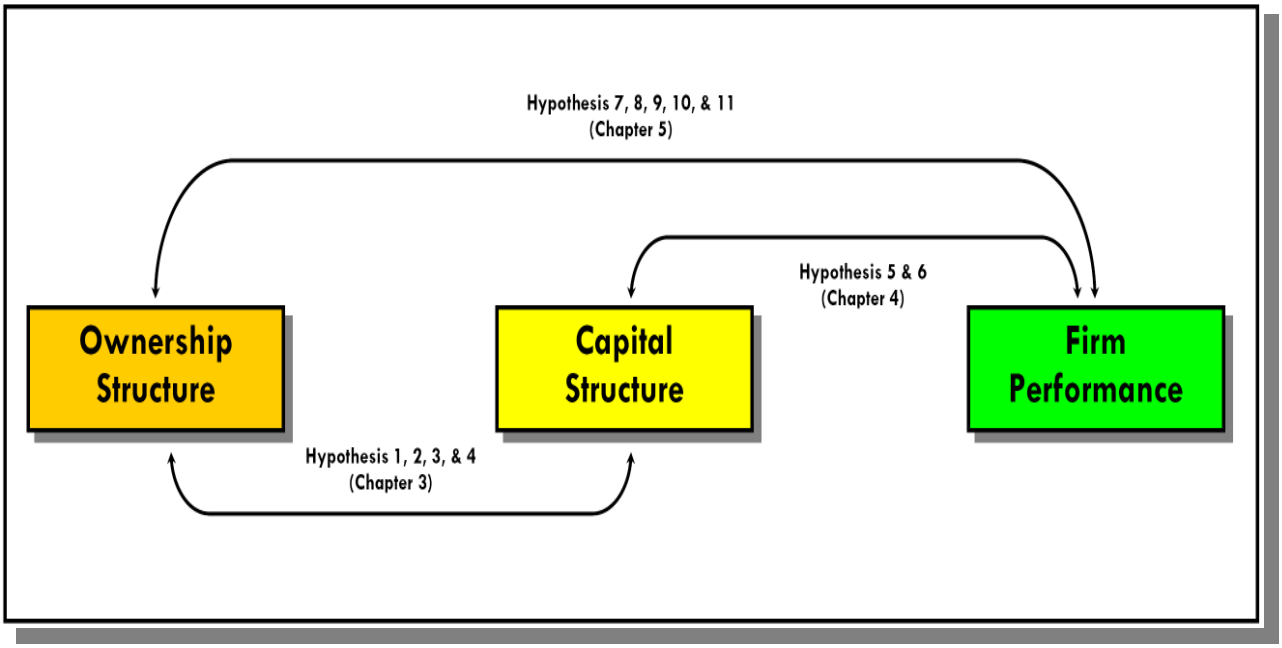
In addition, the model includes control variables that are used as explaining variable, they are:

- Firm size (variable)
- Industry:
    - Industrial company (dummy)
    - Natural resource company (dummy)

- Growth (variable)
- Free Cash Flow (variable)
- Firm profitability (variable)
- Asset specificity (variable)
- The effect of tax (variable)

Figure 6.4

Hypotheses Scheme



CHAPTER 7

EMPIRICAL RESULTS AND ANALYSIS

This chapter includes the empirical results gained by doing a regression to the independent variables and dependent variables in the models. These results will be followed by an analysis of each independent variable's influence in five models that are used to test the hypotheses.

7.1 THE TEST OF MULTIVARIATE REGRESSION MODEL VALIDITY

In order to make sure that the multivariate regression model is valid, the thesis will run three classical regression validity tests; there are multicollinearity, autocorrelation, and heteroscedasticity [Gujarati 2003].

1. Multicollinearity test

To detect multicollinearity in this thesis, it is used *Variance Inflation Factor* (VIF) of each independent variable. If the VIF of a variable exceeds 10, which will happen if R_j^2 exceeds 0.90, that variable is said be highly collinear. Normally, the closer VIF is to 1, the greater evidence that an independent variable is not collinear with other independent variables.

Table 7.1A

Multicollinearity Test – Model I

No.	Variable	VIF	Conclusion
1	External Block Ownership	1,046	Not exist multicollinearity
2	Size	1,042	Not exist multicollinearity
3	Industry	1,028	Not exist multicollinearity
4	Growth Total Assets	1,042	Not exist multicollinearity
5	Profitability	1,050	Not exist multicollinearity
5	Free Cash Flow	1,044	Not exist multicollinearity
7	Intangibles	1,019	Not exist multicollinearity
8	Non-Debt Tax Shield	1,051	Not exist multicollinearity

Table 7.1B

Multicollinearity Test – Model II

No.	Variable	VIF	Conclusion
1	Managerial Share Ownership	5,794	Not exist multicollinearity
2	Managerial Share Ownership (Square)	5,683	Not exist multicollinearity
3	Size	1,072	Not exist multicollinearity
4	Industry	1,030	Not exist multicollinearity
5	Growth Total Assets	1,025	Not exist multicollinearity
6	Profitability	1,051	Not exist multicollinearity
7	Free Cash Flow	1,045	Not exist multicollinearity
8	Intangibles	1,025	Not exist multicollinearity
9	Non-Debt Tax Shield	1,051	Not exist multicollinearity

Table 7.1C

Multicollinearity Test – Model III

No.	Variable	VIF	Conclusion
1	Managerial Share Ownership	11,378	Exist multicollinearity
2	Managerial Share Ownership (Square)	6,586	Not exist multicollinearity
3	External Block Ownership	1,362	Not exist multicollinearity
4	Difference External Block Ownership	2,930	Not exist multicollinearity
5	Size	1,073	Not exist multicollinearity
6	Industry	1,031	Not exist multicollinearity
7	Growth Total Assets	1,045	Not exist multicollinearity
8	Profitability	1,062	Not exist multicollinearity
9	Free Cash Flow	1,048	Not exist multicollinearity
10	Intangibles	1,026	Not exist multicollinearity
11	Non-Debt Tax Shield	1,052	Not exist multicollinearity

Table 7.1D

Multicollinearity Test – Model IV (A – B – C)

No.	Variable	Model IV - A		Model IV - B		Model IV - C	
		VIF	Status	VIF	Status	VIF	Status
1	Tobin's Q	1,110	N/E	-		-	
2	ROE	1,009	N/E	-		-	
3	Debt-ratio	-		1,235	N/E	1,235	N/E
4	Managerial Share Ownership	11,445	E	11,483	E	11,483	E
5	Managerial Share Ownership (Square)	6,661	N/E	6,629	N/E	6,629	N/E
6	External Block Ownership	1,390	N/E	1,397	N/E	1,397	N/E
7	Difference External Block Ownership	2,934	N/E	2,936	N/E	2,936	N/E
8	Size	1,076	N/E	1,174	N/E	1,174	N/E
9	Industry	1,032	N/E	1,042	N/E	1,042	N/E
10	Growth Total Assets	1,045	N/E	1,056	N/E	1,056	N/E
11	Profitability	1,066	N/E	1,129	N/E	1,129	N/E
12	Free Cash Flow	1,048	N/E	1,048	N/E	1,048	N/E
13	Intangibles	1,030	N/E	1,026	N/E	1,026	N/E
14	Non-Debt Tax Shield	1,113	N/E	1,055	N/E	1,055	N/E

*Note: *E = Exist Multicollinearity*
N/E = Not Exist Multicollinearity

Table 7.1E

Multicollinearity Test – Model V (A – B – C – D – E – F – G – H)

No.	Variable	Model V - A		Model V - B		Model V - C		Model V - D		Model V - E		Model V - F		Model V - G		Model V - H	
		VIF	Status	VIF	Status	VIF	Status	VIF	Status	VIF	Status	VIF	Status	VIF	Status	VIF	Status
1	Debt-ratio	1.224	N/E	1.224	N/E	1.203	N/E	1.203	N/E	1.193	N/E	1.187	N/E	1.200	N/E	1.193	N/E
2	Tobin's Q	-	-	-	-	-	-	-	-	1.075	N/E	-	N/E	1.075	N/E	-	N/E
3	ROE	-	-	-	-	-	-	-	-	-	-	1.006	N/E	-	N/E	1.006	N/E
4	Managerial Share Ownership	-	-	-	-	5.801	N/E	5.801	N/E	-	-	-	-	-	-	-	-
5	Managerial Share Ownership (Square)	-	-	-	-	5.694	N/E	5.694	N/E	-	-	-	-	-	-	-	-
6	External Block Ownership	1.172	N/E	1.172	N/E	-	-	-	-	-	-	-	-	-	-	-	-
7	Difference External Block Ownership	1.132	N/E	1.132	N/E	-	-	-	-	-	-	-	-	-	-	-	-
8	Size	1.150	N/E	1.150	N/E	1.168	N/E	1.168	N/E	1.123	N/E	1.121	N/E	1.128	N/E	1.089	N/E
9	Industry	1.040	N/E	1.040	N/E	1.042	N/E	1.042	N/E	1.027	N/E	1.027	N/E	1.031	N/E	1.031	N/E
10	Growth Total Assets	1.053	N/E	1.053	N/E	1.039	N/E	1.039	N/E	1.039	N/E	1.039	N/E	1.037	N/E	1.032	N/E
11	Profitability	1.114	N/E	1.114	N/E	1.120	N/E	1.120	N/E	1.097	N/E	1.099	N/E	1.101	N/E	1.105	N/E
12	Free Cash Flow	1.045	N/E	1.045	N/E	1.045	N/E	1.045	N/E	1.038	N/E	1.038	N/E	1.041	N/E	1.014	N/E
13	Intangibles	1.023	N/E	1.023	N/E	1.026	N/E	1.026	N/E	1.017	N/E	1.017	N/E	1.017	N/E	1.053	N/E
14	Non-Debt Tax Shield	1.054	N/E	1.054	N/E	1.054	N/E	1.054	N/E	1.123	N/E	1.057	N/E	1.119	N/E	1.089	N/E

*Note: *E = Exist Multicollinearity*
**N/E = Not Exist Multicollinearity*

The multicollinearity test shows that the multivariate regression model is relatively free from multicollinearity problem. It is because all VIF values are below 10 and closer to 1, only MSO in Model III and Model IV (A-B-C), which its VIF value is a little bit above 10 (11.378, 11.445, and 11.483 respectively). As mentioned in Chapter 6 (section 6.3.6 B – 1), the multicollinearity test is used to find any linear relationship amongst explanatory variables in a regression model. It can affect two or more of them. In this investigation, all independent variables do not have severe multicolinearity problem whether hypothetic variables or control variables. Therefore, relatively it can be said that the multivariate model does not have multicolinearity problem.

2. Autocorrelation test

In this thesis, the autocorrelation test for the presence of first-order autocorrelation is the Durbin-Watson statistic. As shown in Table 7.2 (A-B-C-D-E), there is no any tendency of the presence of autocorrelation in the multivariate regression model (Appendix 2 until 6).

Table 7.2A

Autocorrelation Test – Model I

DW statistics	DW table (n = 532 ; k = 8), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.034	1.686	1.852	2.148	2.314	Free from autocorrelation

Table 7.2B

Autocorrelation Test – Model II

DW statistics	DW table (n = 532 ; k = 9), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.039	1.675	1.863	2.137	2.325	Free from autocorrelation

Table 7.2C

Autocorrelation Test – Model III

DW statistics	DW table (n = 532 ; k = 11), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.025	1.654	1.885	2.115	2.346	Free from autocorrelation

Table 7.2D

Autocorrelation Test – Model IV

Model IV - A					
DW statistics	DW table (n = 532 ; k = 13), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.034	1.539	1.813	2.187	2.461	Free from autocorrelation
Model IV - B					
DW statistics	DW table (n = 532 ; k = 12), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.081	1.550	1.801	2.199	2.450	Free from autocorrelation
Model IV - C					
DW statistics	DW table (n = 532 ; k = 12), α level = 5%				
Value	d_L	d_U	$4 - d_U$	$4 - d_L$	Criteria $d_U < d < (4- d_U)$
2.069	1.550	1.801	2.199	2.450	Free from autocorrelation

Table 7.2E

Autocorrelation Test – Model V

Model V - A					
DW statistics	**DW table (n = 1361 ; k = 10), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_u < d < (4- d_u)$**
2.074	1.571	1.779	2.221	2.429	Free from autocorrelation
Model V - B					
DW statistics	**DW table (n = 1361 ; k = 10), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_u < d < (4- d_u)$**
2.067	1.571	1.779	2.221	2.429	Free from autocorrelation
Model V - C					
DW statistics	**DW table (n = 1361 ; k = 10), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_u < d < (4- d_u)$**
2.042	1.571	1.779	2.221	2.429	Free from autocorrelation
Model V - D					
DW statistics	**DW table (n = 1361 ; k = 10), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_u < d < (4- d_u)$**
2.069	1.571	1.779	2.221	2.429	Free from autocorrelation
Model V - E					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $0 < d < d_L$**
1.409	1.582	1.768	2.232	2.418	Positive autocorrelation
Model V - F					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $0 < d < d_L$**
1.342	1.582	1.768	2.232	2.418	Positive autocorrelation
Model V - G					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_L < d < d_u$**
1.679	1.582	1.768	2.232	2.418	A probability of the presence of autocorrelation
Model V - H					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_u**	**4 – d_u**	**4 – d_L**	**Criteria $d_L < d < d_u$**
1.674	1.582	1.768	2.232	2.418	A probability of the presence of autocorrelation

It can be concluded that only in Model V (E-F-G-H) there is a probability of the presence of autocorrelation in the multivariate regression model. It needs a correction to make sure that the model is valid and able to be used to test hypothesis 9 and hypothesis 10. Hence, this thesis uses Cochran-Orcutt Method to cure the autocorrelations symptoms. According to Cochran-Orcutt method, there are some steps to cure the symptoms, in which it creates new multivariate regression model. Table 7.2F shows the result after doing a correction to the model (Appendix 7). It means the model is valid and able to be used to test hypothesis 9 and hypothesis 10. Therefore, we can use the new multivariate regression model to continue our next step of analysis.

Table 7.2F

Corrected Autocorrelation Test – Model V (E-F-G-H)

Model V – E (Corrected DW)					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_U**	**$4 - d_U$**	**$4 - d_L$**	**Criteria $d_U < d < (4- d_U)$**
2.041	**1.582**	**1.768**	**2.232**	**2.418**	**Free from autocorrelation**
Model V – F (Corrected DW)					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_U**	**$4 - d_U$**	**$4 - d_L$**	**Criteria $d_U < d < (4- d_U)$**
2.079	**1.582**	**1.768**	**2.232**	**2.418**	**Free from autocorrelation**
Model V – G (Corrected DW)					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_U**	**$4 - d_U$**	**$4 - d_L$**	**Criteria $d_U < d < (4- d_U)$**
2.013	**1.582**	**1.768**	**2.232**	**2.418**	**Free from autocorrelation**
Model V – H (Corrected DW)					
DW statistics	**DW table (n = 1361 ; k = 9), α level = 5%**				
Value	**d_L**	**d_U**	**$4 - d_U$**	**$4 - d_L$**	**Criteria $d_U < d < (4- d_U)$**
2.001	**1.582**	**1.768**	**2.232**	**2.418**	**Free from autocorrelation**

3. Heteroscedasticity test

When using some statistical techniques, such as ordinary least squares (OLS), a number of assumptions are typically made. One of these is that the error term has a constant variance. This will be true if the observations of the error term are assumed to be drawn from identical

distributions. Heteroscedasticity is a violation of this assumption. To detect the existence of heteroscedasticity, in this thesis, it will be used Spearman's Rank Correlation Test.

As shown in Table 7.3 (A-B-C-D-E), relatively there are no statistically significant correlations amongst independent variables and it only influences in control variables, such as Size and Industry (Size in Model IV A-B, Model V A-B-C-D-E-G-H and Industry in Model I, II, II, IV A-B-C, V B-C-D-G-H), which are not tested in hypotheses. It means that all multivariate regression models are relatively free from any disturbance that is able to obscure the analysis.

Table 7.3A

Heteroscedasticity Test – Model I

Spearman's rho ARES				
Independent Variable	**Correlation Coefficient**	**Sig. (2-tailed)**	**N**	**Significance**
EBO	-.067	.123	532	
SIZE	-.249(**)	.000	532	Significant at the 0.01 level
Industry	.209(**)	.000	532	Significant at the 0.01 level
GrowthTA	.061	.158	532	
PROF	.049	.263	532	
FCF	-.005	.902	532	
INTA	.011	.799	532	
NDTS	.008	.850	532	

Table 7.3B

Heteroscedasticity Test – Model II

Spearman's rho ARES				
Independent Variable	**Correlation Coefficient**	**Sig. (2-tailed)**	**N**	**Significance**
MSO	.000	.996	532	
MSO^2	.001	.982	532	
SIZE	-.260(**)	.000	532	Significant at the 0.01 level
Industry	.197(**)	.000	532	Significant at the 0.01 level
GrowthTA	.034	.435	532	
PROF	.043	.320	532	
FCF	.021	.627	532	
INTA	-.009	.839	532	
NDTS	.018	.685	532	

Table 7.3C

Heteroscedasticity Test – Model III

Spearman's rho ARES				
Independent Variable	**Correlation Coefficient**	**Sig. (2-tailed)**	**N**	**Significance**
MSO	.039	.375	532	
MSO^2	.036	.404	532	
EBO	-.058	.185	532	
D(EBO)	.079	.067	532	
SIZE	-.253(**)	.000	532	Significant at the 0.01 level
Industry	.228(**)	.000	532	Significant at the 0.01 level
GrowthTA	.063	.149	532	
PROF	.064	.138	532	
FCF	-.015	.731	532	
INTA	-.008	.857	532	
NDTS	.037	.392	532	

Table 7.3D

Heteroscedasticity Test – Model IV (A-B-C)

Spearman's rho ARES						
Independent Variable	**Model IV – A**		**Model IV – B**		**Model IV – C**	
	Correlation Coefficient	**Sig. (2-tailed)**	**Correlation Coefficient**	**Sig. (2-tailed)**	**Correlation Coefficient**	**Sig. (2-tailed)**
Tobin's Q	.101(*)	.020	-	-	-	-
ROE	.089(*)	.041	-	-	-	-
Ln D/E	-	-	-.175(**)	.000	.239(**)	.000
MSO	.050	.248	-.036	.410	-.213(**)	.000
MSO^2	.050	.252	-.051	.238	-.215(**)	.000
EBO	-.065	.132	.024	.585	.189(**)	.000
D(EBO)	.084	.052	-.052	.228	-.164(**)	.000
SIZE	-.252(**)	.000	-.075	.085	.090(*)	.037
Industry	.234(**)	.000	.123(**)	.004	.000	.991
GrowthTA	.072	.098	.102(*)	.018	-.079	.069
PROF	.082	.059	-.009	.841	-.256(**)	.000
FCF	-.005	.914	.014	.755	-.089(*)	.041
INTA	-.008	.848	.051	.239	-.026	.554
NDTS	.055	.208	-.213(**)	.000	.001	.976

*Note: ** = Significant at the 0.01 level*
** = Significant at the 0.05 level*
N = 532

Table 7.3E

Heteroscedasticity Test – Model V (A-B-C-D-E-F-G-H)

Spearman's rho ARES																	
Independent Variable	Model V - A		Model V - B		Model V - C		Model V - D		Model V - E		Model V - F		Model V - G		Model V - H		N
	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	Correlation Coefficient	Sig. (2-tailed)	
Tobin's Q	-	-	-	-	-	-	-	-	.033	.220	-	-	.052	.235	-	-	532
ROE	-	-	-	-	-	-	-	-	-	-	-.058	.184	-	-	.152(**)	.000	532
Ln D/E	-.160(**)	.000	.231(**)	.000	-,176(**)	.000	.228(**)	.000	.073(**)	.007	.089(*)	.041	-.135(**)	.002	-.195(**)	.000	532
MSO	-	-	-	-	-,016	.716	-.210(**)	.003	-	-	-	-	-	-	-	-	532
MSO^2	-	-	-	-	-,036	.406	-.215(**)	.033	-	-	-	-	-	-	-	-	532
EBO	.023	.596	.191(**)	.000	-	-	-	-	-	-	-	-	-	-	-	-	532
D(EBO)	-.045	.295	-.122(**)	.005	-	-	-	-	-	-	-	-	-	-	-	-	532
SIZE	-.070	.106	.104(*)	.016	-,088(*)	.043	.082	.001	-.101(**)	.000	.084	.054	-.215(**)	.000	-.539(**)	.000	532
Industry	.144(**)	.001	-.089(*)	.040	,118(**)	.006	-.012	.000	-.027	.313	-.015	.725	.030	.495	-.076(**)	.005	532
GrowthTA	.104(*)	.017	-.133(**)	.002	,080	.065	-.106(*)	.129	.040	.145	.012	.790	-.013	.772	.118(**)	.000	532
PROF	-.012	.785	-.265(**)	.000	,018	.680	-.253(**)	.000	.021	.442	-.069	.112	.096(*)	.026	.245(**)	.000	532
FCF	.016	.720	-.082	.059	,031	.481	-.092(*)	.002	-.059(*)	.031	-.019	.663	.016	.717	-.102(**)	.000	532
INTA	.057	.188	-.008	.853	,031	.479	-.002	.203	-.066(*)	.015	.079	.068	-.150(**)	.001	-.054(*)	.047	532
NDTS	-.209(**)	.596	.007	.865	-,209(**)	.000	.023	.266	.018	.498	-.014	.745	.036	.408	-.081(**)	.003	532

*Note: ** = Significant at the 0.01 level*
** = Significant at the 0.05 level*

Heteroscedasticity by itself does not cause OLS estimators to be biased or inconsistent (for the difference between these two concepts see the graphs below) since neither bias nor consistency are determined by the covariance matrix of the error term [Gujarati 2003]. The rest un-heteroscedasticity estimators in this thesis are still sufficient to have minimum variance or efficient.

7.2 THE EFFECT OF EXTERNAL BLOCK OWNERSHIP ON CAPITAL STRUCTURE

In general, all control variables are positively skewed. In particular, in most cases these data are bounded by zero. It is because most data sets have a central peak, meaning that the majority of data points cluster fairly close to the center. Higher values indicate a higher, sharper peak; lower values indicate a lower, less distinct peak. Therefore, it is likely to exhibit positive skewness (Table 7.4). If the coefficient of skewness/SES[1] is more than about 2 or less than about −2, we can say that the population very likely has some skewness in the same direction as the sample [Gujarati 2003].

[1] SES: Standard Error of Skewness

Correlation analysis (Table 7.5) shows that some explanatory variables are significantly correlated, especially some control variables. First, there is significantly negative correlation between the SIZE and MSO variables (-0.176). This statistic confirms the wealth constraint argument, which suggests that the personal wealth constraint of corporate insiders is one important barrier to managerial share ownership. Specifically, as the size of the firm increases, it becomes more costly for managers to purchase a larger percentage of shares. This argument is strengthened by the significant correlation between the SIZE and MSO Square variables (-0.185) that implies the company size has impeded the managers' opportunity to increase its company shares.

On the other side, the correlation between SIZE and D(EBO), which are negatively correlated significantly (-0.148), is consistent with the idea that, as firms become larger, ownership concentration decreases, as shareholders have to invest greater amounts to obtain a given level of shareholdings. In other words, the concentration of external block holders becomes to be more diluted or dispersed as well as the size of firm is going to increase and the level of managerial ownership is high.

A significantly positive correlation between MSO, MSO Square, and GROWTH (0.117 and 0.119, respectively) is also found. This implies that the high level of managerial share ownership increases the firms' opportunity to use profit or earnings as retained earnings or expanding funds. On the other side, a significant negative correlation between EBO and GROWTH (-0.156), implies that existence of external block holders creates a contrary situation to the relation between MSO and GROWTH.

A significantly negative correlation between INDUSTRY and NDTS (-0.082) suggests that certain industries do not use annual depreciation expense as a mode to receive lower tax benefits and it could explain to the fiscal policy in East Asian countries on non-debt tax shield policy. The industry characteristic seems to determine also its profitability, because there is a significantly negative correlation between INDUSTRY and PROF (-0.090). It can mean that certain industries are still in difficulties in the post Asian financial crisis.

Finally, PROF and NDTS also have a significant positive correlation (0.195) which implies that profitable firms are more likely to allocate its earnings to get free cash flow in form of annual depreciation expense. Meanwhile, PROF and MSO Square have a significant positive correlation (0.090) that implies managerial share ownership pushes the firms' profitability and uses it as a source of financing.

Table 7.4

Descriptive Statistics – Skewness and Kurtosis

Independent Variable	Skewness		Kurtosis	
	Statistics	Standard Error	Statistics	Standard Error
MSO	1.646	.106	2.890	.211
MSO^2	4.412	.106	28.223	.211
EBO	.092	.106	-.857	.211
D(EBO)	1.317	.106	-.267	.211
SIZE	.620	.106	.719	.211
Industry	-.522	.106	-1.734	.211
GrowthTA	13.462	.106	240.857	.211
PROF	-1.231	.106	19.734	.211
FCF	-11.152	.106	171.031	.211
INTA	5.942	.106	49.074	.211
NDTS	2.097	.106	6.681	.211

The significant correlation between these variables suggests that multicollinearity may be a potential problem in the analysis. The effect, if any, of this correlation between explanatory variables on the robustness of our empirical results is investigated and reported in section 7.5.

Table 7.5

Coefficient Correlation

Independent Variable	MSO	MSO^2	EBO	D(EBO)	SIZE	Industry	Growth	PROF	FCF	INTA	NDTS
MSO	1.000	.986(**)	-.442(**)	.695(**)	-.176(**)	.076	.117(**)	.081	-.030	-.049	-.053
MSO^2	.986(**)	1.000	-.466(**)	.705(**)	-.185(**)	.078	.119(**)	.090(*)	-.026	-.061	-.057
EBO	-.442(**)	-.466(**)	1.000	-.313(**)	.084	-.056	-.156(**)	-.172(**)	.041	.081	.020
D(EBO)	.695(**)	.705(**)	-.313(**)	1.000	-.148(**)	.045	.030	.045	-.038	-.073	.006
SIZE	-.176(**)	-.185(**)	.084	-.148(**)	1.000	-.017	-.011	-.047	.074	.055	-.048
Industry	.076	.078	-.056	.045	-.017	1.000	.024	-.090(*)	.016	.057	-.171(**)
Growth	.117(**)	.119(**)	-.156(**)	.030	-.011	.024	1.000	.283(**)	-.187(**)	.103(*)	.080
PROF	.081	.090(*)	-.172(**)	.045	-.047	-.090(*)	.283(**)	1.000	.264(**)	-.075	.195(**)
FCF	-.030	-.026	.041	-.038	.074	.016	-.187(**)	.264(**)	1.000	-.008	.109(*)
INTA	-.049	-.061	.081	-.073	.055	.057	.103(*)	-.075	-.008	1.000	.126(**)
NDTS	-.053	-.057	.020	.006	-.048	-.171(**)	.080	.195(**)	.109(*)	.126(**)	1.000

** Significant at the 0.01 level (2-tailed)
* Significant at the 0.05 level (2-tailed)

In order to test whether the external block ownership affect companies' capital structure, the thesis run a multivariate regression model that puts firm's debt to equity ratio as dependent variable.

In this step, the thesis will test first hypothesis as follows:

$Ho_1 : \beta_1 = 0$ Firms with a higher level of external block holdings are likely not to have a higher debt ratio, ceteris paribus.

$Ha_1 : \beta_1 \neq 0$ Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus.

Table 7.6 presents the regression results for the external block ownership test (that is, Model I). As can be seen from this table, there is supportive evidence of a positive relation between external block ownership and leverage. The coefficient on the EBO variable is positive and statistically significant (t-statistic = 3.062).

Table 7.6

The Effect of External Block Ownership on Capital Structure

Model I

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ EBO_{it} + \beta_1\ SIZE_{it} + \beta_2\ IND_{it} + \beta_3\ GROWTH_{it} + \beta_4\ PROF_{it} + \beta_5\ FCF_{it} + \beta_6\ INTA_{it} + \beta_7\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.278	-9.932		.000	
EBO	.621	3.062*		.002	
SIZE	.226	6.738*		.000	
Industry	-.240	-2.330**		.020	
GrowthTA	-.002	-2.217**		.027	
PROF	-2.256	-5.682*		.000	
FCF	8.11E-005	.453		.651	
INTA	.078	.117		.907	
NDTS	-2.033	-1.268		.205	
MODEL			14.557*	4.88	0.182

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

This positive relation is consistent with the active monitoring hypothesis that suggests that large shareholders have greater incentives to monitor management due to their significant investment in the firm. The increased monitoring by external block holders decreases managerial opportunism, leading to lower agency conflicts. The results obtained are also consistent with those of Friend/Lang [1988] and Brailsford et al. [2002] who obtain evidence that firms with large non-managerial investors have significantly higher average debt ratios than those without external block holders. The thesis's results do not support the passive voting hypothesis [Pound 1988] which suggests that large shareholders vote with management without due regard to the interests of dispersed shareholders.

The overall regression explains approximately 18.2% of the variation in the dependent variable. Consistent with the size argument, the SIZE variable in the regression has a significant positive coefficient (t-statistic = 6.738), suggesting that larger firms have higher leverage. This is consistent with Scott/Martin [1975] and Ferri/Jones [1979] and empirical evidence obtained by Agrawal/Nagarajan [1990] and Brailsford et al. [2002].

The significant negative coefficient on PROF (t-statistic = -5.682) is consistent with the pecking order hypothesis of Myers [1977] and Myers/Majluf [1984], and the empirical results of Titman/Wessels [1988], Friend/Lang [1988], Chiarella et al. [1992], Allen [1993] and Wald [1995]. The "pecking order" hypothesis suggests that profitable firms will demand less debt because internal funds are available for financing projects.

The IND variable which proxies for firm risk has a negative and significant coefficient (t-statistic = -2.330). This is consistent with Scott/Martin [1975] and Bradley et al. [1984]. It also suggests that resource companies have higher leverage than industrial companies in term of East Asian companies' characteristic that mainly operate in exploiting natural resources. It also implies that in East Asian companies' type of industry influence the financing decision, one factor that can explain the cause of wide effect of Asian financial crisis to certain companies.

The coefficient on the GROWTH variable is negative and significant (t-statistic = -2.217). This is consistent with Bradley et al. [1984] and Titman/Wessels [1988] who obtain a significant negative relationship between growth opportunities and firm's leverage. It means that the company policy to use leverage as source of financing has impeded the opportunity to grow.

The unanticipated negative but insignificant coefficient on FCF may be due to the fact that the independent variables included in the models overlap and capture more than one effect. In this case, a few variables may proxy for the effect of free cash flow simultaneously. In particular, besides capturing the profitability effect, PROF variable may also proxy for the effect of free cash flow. To the extent that some industries have significant potential for free cash flow abuse, the IND variable may also capture some of the free cash flow effects. As a result, the FCF variable may only reflect the residual effects of free cash flow.

The coefficient on the NDTS variable is not significant. This supports the tax advantage of capital structure under a favored non-debt tax shields system.

7.3 THE EFFECT OF MANAGERIAL SHARE OWNERSHIP ON FINANCING DECISION

The next stage of analysis involves testing the curvilinear relationship as proposed in the second hypothesis. Table 7.7 contains the regression results of the curvilinear model where ln(D/E) is regressed against managerial share ownership (MSO), the square of managerial share ownership (MSO^2) and control variables. The coefficient on MSO is positive but insignificant. The coefficient on MSO^2 is negative and insignificant. These results support the second hypothesis.

The signs on MSO and MSO^2 parallel the alignment of interests and entrenchment effects of managerial share ownership put forward by Jensen/Meckling [1976] and Fama/Jensen [1983] respectively. Specifically, when the level of managerial share ownership is low, an increase in managerial share ownership has the effect of aligning management and shareholders' interests. Consequently, as managerial share ownership increases from a low level, managers have less incentive to reduce the debt level, resulting in a higher level of debt (but at a decreasing rate). However, when corporate managers hold a significant proportion of firm shares, the entrenchment effect sets in, resulting in higher managerial opportunism and therefore a lower debt ratio. In particular, with significant voting power and influence, it becomes more difficult to control managerial behavior, resulting in fewer constraints on managers' ability to adjust debt ratios to their own self-interests.

$Ho_2 : \beta_1 = 0$ At low levels of managerial share ownership, managerial share ownership is not positively related to a firm's debt ratio, ceteris paribus, and at high levels of managerial share ownership, managerial share ownership is not negatively related to a firm's debt ratio, ceteris paribus, such that the expected relationship between management ownership and the leverage ratio is curvilinear.

$Ha_2 : \beta_1 \neq 0$ At low levels of managerial share ownership, managerial share ownership is positively related to a firm's debt ratio, ceteris paribus, and at high levels of managerial share ownership, managerial share ownership is negatively related to a firm's debt ratio, ceteris paribus, such that the expected relationship between management ownership and the leverage ratio is curvilinear.

Table 7.7

The Effect of Managerial Share Ownership on Financing Decision

Model II

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ MSO_{it} + \beta_1\ MSO^2_{it} + \beta_2\ SIZE_{it} + \beta_3\ IND_{it} + \beta_4\ GROWTH_{it} + \beta_5\ PROF_{it} + \beta_6\ FCF_{it} + \beta_7\ INTA_{it} + \beta_8\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.037	-9.027		.000	
MSO	.693	.804		.422	
MSO^2	-1.762	-.988		.323	
SIZE	.234	6.836*		.000	
Industry	-.258	-2.480**		.013	
GrowthTA	-.002	-2.695*		.007	
PROF	-2.353	-5.870*		.000	
FCF	8.54E-005	.472		.637	
INTA	.251	.373		.710	
NDTS	-2.022	-1.250		.212	
MODEL			11.803*	4.88	0.169

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Overall, this curvilinear regression model explains approximately 16.9% of the variation in the dependent variable. Several of the control variables, including SIZE, IND, GROWTH, and PROF have statistically significant coefficients at either 1% or 5% levels. Moreover, the signs are consistent with predictions. Indeed, all coefficient signs, except FCF, are as hypothesized. The coefficient on FCF is statistically insignificant. Again, the coefficient on the tax variable is not significant.

The turning point of the quadratic relationship can be found by evaluating the first derivative and setting it to zero. This thesis turning point is 0.196%. This result has practical import as it means that managerial share ownership in excess of 0.196% impose restrictions on the amount of leverage a firm can support, on average.

7.4 THE RELATIONSHIP BETWEEN EXTERNAL BLOCK OWNERSHIP AND LEVERAGE AT DIFFERENT LEVELS OF MANAGERIAL SHARE OWNERSHIP

Previously, this study separately tested the effect of external block ownership and managerial share ownership on capital structure and found that both have a significant impact on corporate financing policies. While external block holders have a positive effect on the debt ratio, the relation between managerial share ownership and leverage is curvilinear. This implies that the debt ratio is a function of both managerial share ownership and external block ownership. Thus,

this thesis now explore a model which brings together both EBO and MSO (and the control) variables.

The regression results for the joint test are presented in Table 7.8. The results support the third and fourth hypotheses that propose that the relationship between external block ownership and leverage at high levels of managerial share ownership differs from that at low levels of managerial share ownership.

$Ho_3 : \beta_1 = 0$ At low levels of managerial share ownership, the level of external block ownership is not positively related to the firm's debt ratio, ceteris paribus.

$Ha_3 : \beta_1 \neq 0$ At low levels of managerial share ownership, the level of external block ownership is positively related to the firm's debt ratio, ceteris paribus.

$Ho_4 : \beta_1 = 0$ At high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is more significant than at low levels of managerial share ownership, ceteris paribus.

$Ha_4 : \beta_1 \neq 0$ At high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is less significant than at low levels of managerial share ownership, ceteris paribus.

The results of the joint model retain support for the curvilinear relationship between managerial share ownership and leverage. The coefficient on MSO (t-statistic = 2.188) is significantly positive and MSO^2 (t-statistic = -1.844) is also negative significantly. The coefficient on the EBO variable tests the relationship between external block ownership and debt levels when the level of managerial share ownership is low, it is positive and significant (t-statistic = 3.643). The coefficient on the D*EBO dummy variable is not significant (t-statistic = -1.437) which indicates that the relationship between external block ownership and leverage is relatively not different at high and low levels of managerial share ownership. Specifically, the slope coefficient for the relationship between external block ownership and leverage at high levels of managerial share ownership is approximately zero (which is obtained from the summation of β_2 and β_3, i.e. 0.631). It is argued that the negative entrenchment effect arising from high levels of managerial share ownership is offset by the positive monitoring effect of external block holders.

Table 7.8

The Relationship of External Block Ownership and Leverage at Different Levels of Managerial Share Ownership on Financing Decision

Model III

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ MSO_{it} + \beta_1\ MSO^2_{it} + \beta_2\ EBO_{it} + \beta_3\ (D^*EBO_{it}) + \beta_4\ SIZE_{it} + \beta_5\ IND_{it} + \beta_6\ GROWTH_{it} + \beta_7\ PROF_{it} + \beta_8\ FCF_{it} + \beta_9\ INTA_{it} + \beta_{10}\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.560	-9.668		.000	
MSO	2.614	2.188**		.029	
MSO^2	-3.499	-1.844***		.066	
EBO	.841	3.643*		.000	
D*EBO	-.210	-1.048		.295	
SIZE	.237	6.983*		.000	
Industry	-.249	-2.420**		.016	
GrowthTA	-.002	-2.246**		.025	
PROF	-2.281	-5.722*		.000	
FCF	6.32E-005	.353		.724	
INTA	.180	.270		.787	
NDTS	-1.942	-1.213		.226	
MODEL			11.106*	4.88	0.190

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Overall, the regression results less support the thesis proposition that the relationship between external block ownership and leverage at low levels of managerial share ownership is different from that at high levels, due to the interaction between managerial share ownership and external block ownership. Even though the sign of D(EBO) is as predicted, its influence is not quite significant to make a difference. This result is different from Brailsford et al. [2002]'s investigation in Australian companies that supports the different relationship of external block ownership and leverage at different levels of managerial share ownership. Short/Keasey [1999] argue that governance mechanisms in the different countries may be a contributing factor in explaining the differences.

The signs on the majority of the control variables, including SIZE, IND, GROWTH, and PROF, are consistent with the predictions and the coefficients are statistically significant. However, the negative coefficient on FCF is different from that anticipated. Further, the sign and coefficient on the tax variable are again insignificant.

7.5 SENSITIVITY ANALYSIS

One issue raised in the discussion on section 7.3 is the presence of significant correlation between some of the explanatory variables. It has been suggested that this correlation may create a problem of multicollinearity, and consequently model misspecification. The problem with multicollinearity is essentially the lack of sufficient information in the sample to permit accurate estimation of the individual parameters. It has been suggested that multicollinearity need not necessarily create a problem [Maddala 1992]. One way of testing for the impact of multicollinearity is by dropping the explanatory variables that are highly correlated. Hence, the highly correlated variables are removed one at a time to test the sensitivity of the results.

Table 7.9A

Sensitivity Analysis – Omitted GROWTH from the Joint Model (Model A)

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ MSO_{it} + \beta_1\ MSO^2_{it} + \beta_2\ EBO_{it} + \beta_3\ (D^*EBO_{it}) + \beta_4\ SIZE_{it} + \beta_5\ IND_{it} + \beta_6\ PROF_{it} + \beta_7\ FCF_{it} + \beta_8\ INTA_{it} + \beta_9\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.617	-9.889		.000	
MSO	2.540	2.119**		.035	
MSO^2	-3.333	-1.751***		.081	
EBO	.909	3.958*		.000	
D*EBO	-.196	-.972		.332	
SIZE	.239	7.021*		.000	
Industry	-.264	-2.560**		.011	
PROF	-2.356	-5.910*		.000	
FCF	9.08E-005	.506		.613	
INTA	.137	.205		.838	
NDTS	-1.829	-1.139		.255	
MODEL			11.622*	3.93	0.182

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

First, the study excludes from the full model the GROWTH variable that is highly correlated with the MSO, MSO^2, EBO, PROF, FCF, and INTA variables (Model A). Next, it excludes the GROWTH variable and the PROF variable due to its high correlation with MSO^2, EBO, IND, FCF and NDTS variables (Model B). Finally, the investigation excludes the GROWTH and FCF variables along with the NDTS variable due to its high correlation with IND, INTA, and PROF variables (Model C). Table 7.9 (A-C) presents these results.

Table 7.9B

Sensitivity Analysis – Omitted GROWTH and PROF from the Joint Model (Model B)

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ MSO_{it} + \beta_1\ MSO^2_{it} + \beta_2\ EBO_{it} + \beta_3\ (D^*EBO_{it}) + \beta_4\ SIZE_{it} + \beta_5\ IND_{it} + \beta_6\ FCF_{it} + \beta_7\ INTA_{it} + \beta_8\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.754	-10.122		.000	
MSO	2.318	1.875***		.061	
MSO^2	-3.607	-1.836***		.067	
EBO	1.010	4.272*		.000	
D*EBO	-.106	-.509		.611	
SIZE	.241	6.876*		.000	
Industry	-.231	-2.175**		.030	
FCF	.000	.558		.577	
INTA	.088	.127		.899	
NDTS	-3.301	-2.015**		.044	
MODEL			8.481*	2.72	0.128

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Table 7.9C

Sensitivity Analysis – Omitted SIZE, PROF and GrowthTA from the Joint Model (Model C)

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ MSO_{it} + \beta_1\ MSO^2_{it} + \beta_2\ EBO_{it} + \beta_3\ (D^*EBO_{it}) + \beta_4\ IND_{it} + \beta_5\ FCF_{it} + \beta_6\ INTA_{it} + \beta_7\ NDTS_{it} + e_{it}$$

Variable	Coefficient	T-Statistic	F	Significance	R^2
Constant	-2.878	-10.825		.000	
MSO	2.389	1.927**		.055	
MSO^2	-3.717	-1.888**		.060	
EBO	1.017	4.291*		.000	
D*EBO	-.117	-.564		.573	
SIZE	.239	6.801*		.000	
Industry	-.206	-1.947***		.052	
FCF	.000	.650		.516	
INTA	-.034	-.049		.961	
MODEL			3.637*	2.94	0.058

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

From Table 7.9 (A-C), it can be seen the regression results of Models A, B and C are similar to those of the joint model as presented in Table 7.8. In particular, the coefficient on MSO^2 in all three models is negative and statistically significant. The EBO coefficient estimate for all models is significantly positive. The coefficient on D(EBO) in three models is negative and insignificant, meanwhile dummy variable (IND) and SIZE still are significant when GROWTH, PROF, and NDTS variables are omitted. However, the sign remains consistent across all models. All other

coefficients' significances are similar to those of the joint model, except NDTS. When the GROWTH and PROF variables are omitted, the coefficient on NDTS variable becomes significant. It can be concluded that the influence of tax system on leverage relates to the growth and profitability of a company. The influence becomes less significant when we do not have any further information about the growth level and profitability of a company.

7.6 THE EFFECT OF CAPITAL STRUCTURE ON FIRM PERFORMANCE AND ITS NON-MONOTONIC RELATIONSHIP

In testing the relation between leverage and firm performance and the probability of its non-monotonic relationship under the framework of agency theory, the external block ownership model and managerial share ownership model are incorporated into the model as Berger/di Patti [2002] have suggested in their studies. Under virtually any theory of agency costs, ownership structure is important, since the separation of ownership and control creates agency costs.[2] Greater insider shares may reduce agency costs, although the effect may be reversed at very high levels of insider holdings.[3] As well, outside block ownership or institutional holdings tend to mitigate agency costs by creating a relatively efficient monitor of the managers.[4] Exclusion of the ownership variables may bias the test results because the ownership variables may be correlated with the dependent variable in the agency cost equation (performance) and with the key exogenous variable (leverage) through the reverse causality hypotheses. Therefore, Table 7.10 (A-B) contains the regression results that test this reverse causality.

$Ho_5 : \beta_1 = 0$ Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher firm performance <u>are not likely to have</u> a higher debt ratio, ceteris paribus.

$Ha_5 : \beta_1 \neq 0$ Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher firm performance <u>are likely to have</u> a higher debt ratio, ceteris paribus.

[2] See Barnea, Haugen, and Senbet [1985].
[3] See Morck, Shleifer, and Vishny [1988]
[4] See Shleifer and Vishny [1986]

$Ho_6 : \beta_1 = 0$ Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher debt are not likely to have a higher firm performance, ceteris paribus.

$Ha_6 : \beta_1 \neq 0$ Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher debt are likely to have a higher firm performance, ceteris paribus.

In Table 7.10A, it is measured the effect of firm performance on capital structure, to test the Berger/di Patti's model of reverse causality. The regression model using return on equity (ROE) is excluded from the analysis because the ROE measure does not have any significant variable in the estimation.[5] These results make Tobin's Q the most powerful measures of performance in the East Asian countries case. Therefore, the discussion will concentrate on this measure of performance beside the other control variables.

A positively and significantly relation between Tobin's Q and leverage can be interpreted that the East Asian companies after the crisis apply the efficiency-risk hypothesis. It means higher profit efficiency has generated a higher expected return for those companies in a given capital structure, and the higher efficiency has substituted to some degree for equity capital in protecting the firm against future crises. In the other words, firms with high-expected returns owing to high profit efficiency can hold lower equity ratios. It is also interpreted that firms that are more efficient are considered from lenders as more solvent and consequently they can be expected to be more leveraged than less efficient ones. This result is consistent with Sarkar/Sarkar [2005] that tested the effect of Tobin's Q on leverage in Indian companies post East Asian crisis. They found that the Tobin's Q is related positively and significantly to leverage in low and high growth firms.

The regression results for this reverse causality that are presented in Table 7.10A, support the fifth hypothesis that proposes firm with higher performance are to have a higher debt ratio. This result is different from the previous studies that applied the reverse causality, such as Akintoye [2008] and Margaritis/Psillaki [2006], which support the franchise-value hypothesis, where firms that are more efficient choose higher equity ratios (or lower leverage ratio), all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation.

[5] It is worth noting that the sample included defaulted firms with a negative value of ROE for some firms in some cases, which may affect the validity of ROE as a measure of performance in this study.

Table 7.10A

The Effect of Firm Performance Measures on Capital Structure

Model IV - A

$$Ln\ (D/E)_{it} = \alpha_0 + \beta_0\ Tobin\text{-}Q_{it} + \beta_1\ ROE_{it} + \beta_2\ MSO_{it} + \beta_3\ MSO^2_{it} + \beta_4\ EBO_{it} + \beta_5\ (D^*EBO_{it}) + \beta_6\ SIZE_{it} + \beta_7\ IND_{it} + \beta_8\ GROWTH_{it} + \beta_9\ PROF_{it} + \beta_{10}\ FCF_{it} + \beta_{11}\ INTA_{it} + \beta_{12}\ NDTS_{it} + e_{it}$$

Ln D/E			
Variable	**Coefficient**	**T-Statistic**	**Sig. 2 tail**
Constant	-2.450	-9.027	.000
Tobin's Q	.093	1.829***	.068
ROE	.000	.010	.992
MSO	2.758	2.305**	.022
MSO^2	-3.857	-2.023**	.044
EBO	.781	3.355*	.001
D(EBO)	-.220	-1.095	.274
SIZE	.240	7.075*	.000
Industry	-.253	-2.459**	.014
GrowthTA	-.002	-2.239**	.026
PROF	-2.278	-5.713*	.000
FCF	6.68E-005	.374	.709
INTA	.110	.165	.869
NDTS	-2.645	-1.608	.108
F – Value	9.680*		
R Square	0.195		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Meanwhile, some control variables demonstrate interesting results. As shown in a previous study of Rajan/Zingales [1995] that showed firm profitability has a negative relationship with debt to equity ratio in four of seven industrialized countries, in this study it is obtained an inverse relationship between PROF (profitability) and leverage. It can be interpreted that probably it exists the information cost between external and internal finance. In case there is a significant information asymmetry between insiders and outsiders, firms must depend on bank loans of external fund, and as a result, debt to equity ratio becomes generally high. Furthermore, it may provide support for the proposition that due to agency conflicts, companies over-leveraged themselves, thus affecting their performance negatively. These results are consistent with the findings of previous studies such as Gleason, Mathur and Mathur [2000], Tzelepis/Skuras [2004], Krishnan/Moyer [1997], among others.

The negative and significant coefficient for IND (industry) variable could be as a result of the negative ROE value for some firms included in the analysis as a result of distress. It also means

that natural resource companies in East Asia less use leverage as source of expanding. Meanwhile, GROWTH variable has a negative and significant coefficient that means firms with high debt levels sometimes forego of an investment project in spite of expectations of high returns because of the reluctance of creditors to finance the project. In other words, other pertinent and more important factors may have come into play into the decision to use equity versus debt in pursuing growth projects, such as interest rates, the tedious legal and regulatory hurdles required to list and issue new shares, domestic appetite for new share issuances in the local stock market, etc. In addition, banks in general set leverage ratio limits to borrowers in line with the need to curtail excessive liabilities to within prudent levels and to avoid financial distress to the firm. This practice therefore restricts higher debt exposure.

Other control variables, such as FCF, INTA, and NDTS, do not have any significant coefficient that can support prior investigations and these control variables' results are consistent with three previous models (Model I, II, and III).

Table 7.10B

The Effect of Capital Structure on Firm Performance Measures

Model IV – B & C

$$\text{Tobin-Q}_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ MSO}_{it} + \beta_2 \text{ MSO}^2_{it} + \beta_3 \text{ EBO}_{it} + \beta_4 (D^{*}\text{EBO}_{it}) + \beta_5 \text{ SIZE}_{it} + \beta_6 \text{ IND}_{it} + \beta_7 \text{ GROWTH}_{it} + \beta_8 \text{ PROF}_{it} + \beta_9 \text{ FCF}_{it} + \beta_{10} \text{ INTA}_{it} + \beta_{11} \text{ NDTS}_{it} + e_{it}$$

$$\text{ROE}_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ MSO}_{it} + \beta_2 \text{ MSO}^2_{it} + \beta_3 \text{ EBO}_{it} + \beta_4 (D^{*}\text{EBO}_{it}) + \beta_5 \text{ SIZE}_{it} + \beta_6 \text{ IND}_{it} + \beta_7 \text{ GROWTH}_{it} + \beta_8 \text{ PROF}_{it} + \beta_9 \text{ FCF}_{it} + \beta_{10} \text{ INTA}_{it} + \beta_{11} \text{ NDTS}_{it} + e_{it}$$

Tobin's Q				ROE			
Variable	Coefficient	T-Statistic	Sig. 2 tail	Variable	Coefficient	T-Statistic	Sig. 2 tail
Constant	-1.007	-4.087	.000	Constant	.371	.449	.653
D/E	.069	1.832***	.067	D/E	.010	.079	.937
MSO	-1.718	-1.671***	.095	MSO	-3.245	-.942	.347
MSO²	4.059	2.489**	.013	MSO²	4.209	.770	.442
EBO	.581	2.904*	.004	EBO	-.117	-.174	.862
D(EBO)	.113	.655	.513	D(EBO)	.404	.701	.484
SIZE	-.050	-1.646***	.100	SIZE	.034	.334	.738
Industry	.059	.663	.508	Industry	-.200	-.674	.500
GrowthTA	3.46E-005	.054	.957	GrowthTA	.000	.075	.940
PROF	.130	.371	.711	PROF	-1.554	-1.318	.188
FCF	-4.28E-005	-.279	.780	FCF	4.32E-005	.084	.933
INTA	.738	1.293	.197	INTA	-1.007	-.526	.599
NDTS	7.660	5.578*	.000	NDTS	-.203	-.044	.965
F – Value	5.003*			F – Value	0.336		
R Square	0.104			R Square	0.008		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Like in Model IV-A (the effect of performance measures on capital structure), the regression model using return on equity (ROE) as endogenous variable in determining the effect of leverage on firm performance is excluded from the analysis because all explanatory variables do not have any significant value in the estimation that is positively and significant related. In addition, the F-value and its R-square are invalid and not significant.

A positively and significantly relation between leverage and Tobin's Q is consistent with the incentive signaling approach, which debt can be used to signal the fact that firm has prospect and equity issues may be interpreted as a negative signal. Ross [1977] argues that a firm with better prospects can issue more debt than one with lower prospects, because the issue of debt by the latter will result in a higher probability of bankruptcy because of debt-servicing costs, which is a costly outcome to management. This result is also consistent with the resource constraints approach,[6] which argues, that in the situation, where an entrepreneur has limited resources, then the question of should capital be raised as equity or debt becomes an issue. The placement of equity dilutes an owner-manager's share of profits, and thereby entrepreneurial incentives, motivating on-the-job consumption. Raising debt avoids the sacrifice of incentive intensity since the entrepreneur can internalize to a greater degree the benefits of superior profitability.[7]

The regression results for this reverse causality that are presented in Table 7.10B, support the sixth hypothesis that proposes firm with higher debt ratio are to have a higher performance. This result is different from Krishnan/Moyer [1997] who found a negative and significant impact of total debt to total equity (TD/TE) on firm performance. Otherwise another study by Gleason, Mathur, and Mathur [2000] found that firm's capital structure has a negative and significant impact on firm's performance measures return on assets (ROA), growth in sales (Gsales), and pre-tax income (Ptax).

The variable for outside block ownership, EBO, has a positive sign and is statistically significant in Tobin's Q regression. This finding suggests that an increase in outside block ownership increase firm performance, which is consistent with the hypothesis of increased monitoring incentives from more concentrated outside ownership.

[6] See Jensen/Meckling [1976]
[7] See Grossman/Hart [1986]

The SIZE dummy variables have negative and significant coefficients, suggesting that larger firms tend to be less efficient, everything else equal. It is also consistent with the conventional wisdom that larger firms are better diversified and they can thus hold less capital to buffer against losses. It can be said that the significance of firm size indicates that large firms earn higher returns compared to smaller firms, presumably as a result of diversification of investment and economies of scale. This result is consistent with previous findings including Gleason, Mathur, and Mathur [2000], among others.

The significance of the variable NDTS (or tax system) suggests that the better performance of East Asian companies is related to the higher corporate income tax payment, and to other factors such as the firm's risk, size, and debt ratio. This result indicates that firms with high tax payments have a higher performance rate.

Meanwhile, other control variables, such as Industry and GROWTH, become insignificant when they are regressed to performance measure (Tobin's Q). It means that these variables loose its power and its influence to determine firm performance as they are modeled together with leverage and ownership structure. FCF and INTA do not have any significant coefficient that can support prior investigations and these control variables' results are consistent with three previous models (Model I, II, III and IV-A).

7.7 THE EFFECT OF OWNERSHIP STRUCTURE ON FIRM PERFORMANCE AND ITS NON-MONOTONIC RELATIONSHIP

The following section presents the empirical studies on ownership and performance. The analyzed equations system is aligned with the model of hypothesized effects.[8] To first analyze the relation of each ownership measure and performance separately, the model is decomposed in two groups that contain eight equations systems A, B, C, D, E, F, G, and H as demonstrated in Table 7.11 (A-D). The first of the two models elaborates on ownership concentration; and the second model focuses on insider ownership (managerial ownership).

Each model contains the relation of performance to one of the ownership forms and thus includes two equations, one covering the effects of the ownership aspect on performance and a second with performance determining ownership. In addition, leverage (debt ratio) is included in the ownership equations to reflect the possibility that creditors can act as external monitors, which

[8] For an overview over the model see Figure 6.4, p. 120.

might affect the likelihood of observing ownership structures that facilitate managerial entrenchment. Therefore, there are four hypotheses that are tested in this section as follows:

$Ho_7 : \beta_1 = 0$ Firms with a higher level of external block holdings and a higher debt ratio are not likely to have higher firm performance, ceteris paribus.

$Ha_7 : \beta_1 \neq 0$ Firms with a higher level of external block holdings and a higher debt ratio are likely to have higher firm performance, ceteris paribus.

$Ho_8 : \beta_1 = 0$ Firms with low levels of managerial share ownership and higher debt are not likely to have a higher firm performance, ceteris paribus.

$Ha_8 : \beta_1 \neq 0$ Firms with low levels of managerial share ownership and higher debt are likely to have a higher firm performance, ceteris paribus.

$Ho_9 : \beta_1 = 0$ Firms with higher debt and higher firm performance are not likely to have a higher level of external block holdings, ceteris paribus.

$Ha_9 : \beta_1 \neq 0$ Firms with higher debt and higher firm performance are likely to have a higher level of external block holdings, ceteris paribus.

$Ho_{10} : \beta_1 = 0$ Firms with higher debt and higher firm performance are not likely to have low levels of managerial share ownership, ceteris paribus.

$Ha_{10} : \beta_1 \neq 0$ Firms with higher debt and higher firm performance are likely to have low levels of managerial share ownership, ceteris paribus.

As first ownership aspect, general ownership concentration, i.e., the existence and strength of a controlling shareholder, is analyzed. Like in section 7.6 that tests the effect of firm performance on capital structure, the regression model using return on equity (ROE) is excluded from the analysis because the ROE measure does not have any significant variable in the estimation. In addition, F-Value (0.315) and R-Square (0.006) are not sufficient to give a base of good model. These results make Tobin's Q the most powerful measures of performance in the East Asian countries case. Therefore, the discussion will concentrate on this measure of performance beside the other control variables.

A positively and significantly relation between EBO and Tobin's Q can be interpreted that the East Asian companies large owners are more capable of monitoring and controlling the management, thereby contributing to corporate performance. It means that ownership concentration has been able to increase the cost-efficiency of monitoring in the post-crisis period and due to this higher incentive has enhanced its usage. Accordingly, the controlling shareholder prefers to increase his utility rather by monitoring than by private benefits. This result is consistent with the monitoring model that is theoretically proven by the models of Grossman [1976], Grossman/Hart [1980], Shleifer/Vishny [1986] and others as Bolton/von Thadden [1998], Burkart et al. [1997], Huddart [1993], Leech [2001] and Maug [1998].

Table 7.11A

The Effect of External Block holder Ownership on Firm Performance Measures

Model V – A & B

$$\text{Tobin-Q}_{it} = \alpha_0 + \beta_0 \text{ Ln (D/E)}_{it} + \beta_1 \text{ EBO}_{it} + \beta_2 (\text{D*EBO}_{it}) + \beta_3 \text{ SIZE}_{it} + \beta_4 \text{ IND}_{it} + \beta_5 \text{ GROWTH}_{it} + \beta_6 \text{ PROF}_{it} + \beta_7 \text{ FCF}_{it} + \beta_8 \text{ INTA}_{it} + \beta_9 \text{ NDTS}_{it} + e_{it}$$

$$\text{ROE}_{it} = \alpha_0 + \beta_0 \text{ Ln (D/E)}_{it} + \beta_1 \text{ EBO}_{it} + \beta_2 (\text{D*EBO}_{it}) + \beta_3 \text{ SIZE}_{it} + \beta_4 \text{ IND}_{it} + \beta_5 \text{ GROWTH}_{it} + \beta_6 \text{ PROF}_{it} + \beta_7 \text{ FCF}_{it} + \beta_8 \text{ INTA}_{it} + \beta_9 \text{ NDTS}_{it} + e_{it}$$

Tobin's Q				ROE			
Variable	Coefficient	T-Statistic	Sig. 2 tail	Variable	Coefficient	T-Statistic	Sig. 2 tail
Constant	-1.134	-5.015	.000	Constant	.055	.073	.942
D/E	.063	1.679***	.094	D/E	-.001	-.012	.991
EBO	.625	3.392*	.001	EBO	.118	.192	.848
D(EBO)	.081	.754	.451	D(EBO)	.031	.087	.931
SIZE	-.041	-1.366	.172	SIZE	.047	.467	.640
Industry	.057	.646	.519	Industry	-.212	-.714	.475
GrowthTA	-4.34E-005	-.068	.946	GrowthTA	9.20E-005	.043	.966
PROF	.173	.492	.623	PROF	-1.620	-1.384	.167
FCF	-4.31E-005	-.280	.779	FCF	2.02E-005	.039	.969
INTA	.773	1.348	.178	INTA	-.913	-.478	.633
NDTS	7.694	5.577*	.000	NDTS	-.084	-.018	.985
F – Value	5.249*			F – Value	0.315		
R Square	0.092			R Square	0.006		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

Regarding the control variables, most of the variables' coefficients are not significant, except the debt ratio that supports the seventh hypothesis and NDTS. A positively and significantly relation between leverage and firm performance means that the argument of reduced agency costs by Kim/Sorensen [1986] and Jensen [1986] prevails over the pecking order argument by

Myers/Majluf [1984] and Jensen et al. [1992]. According to the tax substitution theory, an increase in a firm's non-debt tax shield should be associated with decrease in debt [Hughes/Trezevant 1997]. They argue that firms can use other interest item, such as depreciation, tax credit, and pension fund to reduce corporate tax expense, and this action is followed by a decreasing in interest expense, an increasing firm's earning, and provides alternatives in shielding profits from tax. Based on this argument, NDTS (non-debt tax shield) has positively influenced firm performance and it supports the pecking order argument.[9]

After the effect of external block holder ownership was assessed, the next analysis is to measure the effect of managerial share ownership on firm performance. Like in section 7.6 that tests the effect of firm performance on capital structure, the regression model that measures the effect of managerial ownership on firm performance by using return on equity (ROE) is excluded from the analysis because the ROE measure does not have any significant variables in the estimation. In addition, F-Value (0.355) and R-Square (0.007) are not sufficient to give a base of good model. These results make Tobin's Q the most powerful measures of performance in the East Asian countries case.

A negatively and significantly influence of managerial ownership at low-level supports the entrenchment argument. It confirms that managerial ownership at low-level has a strong and negative effect on performance and hence should not be promoted as agency device. Meanwhile a positively and significantly influence of managerial ownership at high-level supports the incentive alignment argument. It means that managerial ownership at high-level reduces conflict of interest between shareholder and manager. These findings are consistent with Morck et al. [1998]'s combined argument that suggests a non-monotonous relationship between managerial ownership and firm performance.

This non-linear relationship is also consistent with previous studies, such as Short/Keasey [1999], McConnel/Servaes [1990], and Han/Suk [1998], which strongly confirm the existence of such relationship between managerial ownership and firm performance. At low levels of ownership, management has the incentive to pursue the firm's value maximization activities. However, at high levels of ownership, self-serving behavior detrimental to the firm's value declines as management owns a higher fraction of the firm's equity, and hence cannot externalize the costs of their moral hazard. Consequently, this result supports the eighth hypothesis.

[9] Myers [1984] suggest that managers have a pecking order in which retained earnings represent the first choice, followed by debt financing, then equity.

Table 7.11B

The Effect of Managerial Share Ownership on Firm Performance Measures

Model V – C & D

$$Tobin\text{-}Q_{it} = \alpha_0 + \beta_0 Ln\,(D/E)_{it} + \beta_1 MSO_{it} + \beta_2 MSO^2_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it}$$

$$ROE_{it} = \alpha_0 + \beta_0 Ln\,(D/E)_{it} + \beta_1 MSO_{it} + \beta_2 MSO^2_{it} + \beta_3 SIZE_{it} + \beta_4 IND_{it} + \beta_5 GROWTH_{it} + \beta_6 PROF_{it} + \beta_7 FCF_{it} + \beta_8 INTA_{it} + \beta_9 NDTS_{it} + e_{it}$$

Tobin's Q				ROE			
Variable	Coefficient	T-Statistic	Sig. 2 tail	Variable	Coefficient	T-Statistic	Sig. 2 tail
Constant	-.624	-3.014*	.003	Constant	.270	.392	.695
D/E	.085	2.278**	.023	D/E	.004	.035	.972
MSO	-2.113	-2.872*	.004	MSO	-1.604	-.656	.512
MSO^2	4.527	2.974*	.003	MSO^2	2.852	.564	.573
SIZE	-.056	-1.843***	.066	SIZE	.035	.342	.733
Industry	.055	.621	.535	Industry	-.202	-.683	.495
GrowthTA	.000	-.335	.738	GrowthTA	.000	.059	.953
PROF	.077	.217	.828	PROF	-1.619	-1.379	.168
FCF	-3.97E-005	-.258	.797	FCF	2.49E-005	.049	.961
INTA	.785	1.364	.173	INTA	-1.014	-.530	.596
NDTS	7.716	5.581*	.000	NDTS	-.090	-.020	.984
F – Value	4. 973*			F – Value	0.355		
R Square	0.087			R Square	0.007		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

The negative and significant effect of size for all companies in this study does not suits the hypotheses of Himmelberg et al. [1999] and Gugler et al. [2003b] arguing for greater scope of moral hazard in large firms. An additional reason for a positive relation of size and insider ownership is that larger firms are likely to employ a more skilled and probably wealthier management. Thus, the wealth constraint argument is moderate.[10] In addition, Gugler et al. [2003b] note that the costly acquisition of a large share might not only reduce ownership concentration, but also increase the entrenchment effect of existing managerial ownership and therefore its advantages.[11] Meanwhile the effect of other control variable, NDTS, is consistent with the argument of reduced agency costs by Kim/Sorensen [1986] and Jensen [1986] that prevails over the pecking order argument by Myers/Majluf [1984] and Jensen et al. [1992], as showed above in Model V – A & B. In addition, other control variables are not significant.

[10] See Himmelberg et al. [1999, p. 364].
[11] See Gugler et al. [2003b, p. 5].

The reverse effects of Tobin's Q on the ownership variables are stated in Table 7.11C (Model V – E & F) and Table 7.11D (Model V – G & H). A positively and significantly influence of Tobin's Q on EBO can be interpreted that the East Asian companies large owners are better informed than minority shareholders or potential investors, therefore, they use their knowledge about the firm's prospects to maximize his wealth.[12] This finding is also consistent with the profit-debt-ownership argument [Demzetz/Lehn 1985]. Since leverage controls the agency conflicts between shareholders and managers, the need for external capital to mediate the conflict decreases. Consequently, performance decreases the leverage, which increases the ownership concentration.

Table 7.11C

The Effect of Firm Performance Measures on External Blockholder Ownership

Model V – E & F

$$EBO_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ Tobin-Q}_{it} + \beta_2 \text{ SIZE}_{it} + \beta_3 \text{ IND}_{it} + \beta_4 \text{ GROWTH}_{it} + \beta_5 \text{ PROF}_{it} + \beta_6 \text{ FCF}_{it} + \beta_7 \text{ INTA}_{it} + \beta_8 \text{ NDTS}_{it} + e_{it}$$

$$EBO_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ ROE}_{it} + \beta_2 \text{ SIZE}_{it} + \beta_3 \text{ IND}_{it} + \beta_4 \text{ GROWTH}_{it} + \beta_5 \text{ PROF}_{it} + \beta_6 \text{ FCF}_{it} + \beta_7 \text{ INTA}_{it} + \beta_8 \text{ NDTS}_{it} + e_{it}$$

EBO							
Variable	Coefficient	T-Statistic	Sig. 2 tail	Variable	Coefficient	T-Statistic	Sig. 2 tail
Constant	.335	9.749	.000	Constant	.307	9.466	.000
D/E	.026	3.094*	.002	D/E	.027	3.232*	.001
TOBIN Q	.017	1.708***	.088	ROE	-.001	-.238	.812
SIZE	.010	1.453	.147	SIZE	.011	1.473	.141
Industry	-.018	-.906	.365	Industry	-.018	-.914	.361
GrowthTA	.000	-2.334**	.020	GrowthTA	.000	-2.323**	.021
PROF	-.095	-1.202	.230	PROF	-.093	-1.182	.238
FCF	-1.14E-005	-.324	.746	FCF	-1.28E-005	-.368	.713
INTA	.005	.039	.969	INTA	-.013	-.100	.920
NDTS	-.013	-.042	.967	NDTS	.128	.420	.674
F – Value	3.994			F – Value	3.662*		
R Square	0.064			R Square	0.059		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

The study of Lins [2002] show the same result, that is, a positive relation between large non-management block holders and firm value could indicate that monitoring of managers by large external block holders has lessened actual or expected managerial agency problems. Conversely,

[12] See Anderson/Reeb [2003, p. 1303], Chang [2003], Demsetz/Lehn [1985], Lemmon/Lins [2003, p. 1446], Loderer/Martin [1997, p. 237], and Thompson II [1976, p. 2].

it could be the case that high firm values lead to increased ownership by these blocks holders.[13] The result is also consistent with Grosfeld [2006] that found a positively and significantly relation between Tobin's Q with ownership concentration in privatized firms and new firms. Hence, this result of this thesis also supports the ninth hypothesis.

The zero coefficient of GROWTH variable could not be interpreted, even though significant statistically. Normally growth is positively related to performance, because higher growth reflects better future growth opportunities and so higher firm valuation. Even though there is little empirical support that found a positively and significantly influence of leverage on ownership concentration, in this study the result is consistent with the study of Miwa/Ramseyer [2001] that measured the effect of leverage on ownership structure in post-war era 1950s in Japan. Reflecting to the Japan's experience in post-war that gave an opportunity to Japanese firms to re-concentrate their ownership, it can be interpreted that leveraged firms has pushed large shareholders to increase its portion as they saw a affordable business environment that indicates a better prospect for their firms. On the other side, the effect of leverage on ownership concentration in this thesis is different from the study of Welch [2003] that found a negatively and significantly relationship between leverage and ownership concentration in case of Australian firms. Since other control variables (SIZE, Industry, PROF, FCF, INTA, and NDTS) do not yield any significant results, hence, the analysis of the results is not further considered in this study.

Finally, this section analyses the influence of firm performance on insider ownership and its definition of insider is limited on managerial share ownership. In this regression model, even though both model (Model V – G & H) have a significant F-value that indicates a valid model; unfortunately, both exogenous variables of firm performance (Tobin's Q and ROE) are far from statistically significant results (t-statistic: 0.173 and -0.231, respectively). However, the sign of performance's coefficient is consistent with some previous studies, such as Kole [1996] provided related evidence for this conjecture by showing that managers prefer equity compensation only when they expect their firms to perform well, suggesting that managerial ownership might be endogenous to compensation contracting practices. Similarly, Rajagopalan [1996] showed the relationship between executive compensation and performance is contingent upon the firm's strategic context. More recently, Cho [1998] used the simultaneous equations estimation technique to show, for his sample, that corporate value affected ownership structure, while the reverse relationship did not hold. Loderer/Martin [1997] found that acquisition performance and

[13] See Rouwenhorst [1999], Chui, Titman, and Wei [2000].

firm value affected the size of managers' stockholdings but not vice versa in their sample of acquisitions. Relatively this regression result supports the tenth hypothesis.

Table 7.11D

The Effect of Firm Performance Measures on Managerial Share Ownership

Model V – G & H

$$MSO_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ Tobin-Q}_{it} + \beta_2 \text{ SIZE}_{it} + \beta_3 \text{ IND}_{it} + \beta_4 \text{ GROWTH}_{it} + \beta_5 \text{ PROF}_{it} + \beta_6 \text{ FCF}_{it} + \beta_7 \text{ INTA}_{it} + \beta_8 \text{ NDTS}_{it} + e_{it}$$

$$MSO_{it} = \alpha_0 + \beta_0 \text{ Ln } (D/E)_{it} + \beta_1 \text{ ROE}_{it} + \beta_2 \text{ SIZE}_{it} + \beta_3 \text{ IND}_{it} + \beta_4 \text{ GROWTH}_{it} + \beta_5 \text{ PROF}_{it} + \beta_6 \text{ FCF}_{it} + \beta_7 \text{ INTA}_{it} + \beta_8 \text{ NDTS}_{it} + e_{it}$$

MSO							
Variable	Coefficient	T-Statistic	Sig. 2 tail	Variable	Coefficient	T-Statistic	Sig. 2 tail
Constant	.137	5.718	.000	Constant	.136	5.762	.000
D/E	.000	-.037	.970	D/E	.000	-.025	.980
TOBIN Q	.001	.173	.863	ROE	.000	-.231	.818
SIZE	-.012	-2.814*	.005	SIZE	-.012	-2.820*	.005
Industry	.014	1.141	.255	Industry	.014	1.131	.259
GrowthTA	2.64E-005	.303	.762	GrowthTA	2.58E-005	.296	.767
PROF	.087	1.815***	.070	PROF	.086	1.796***	.073
FCF	1.06E-005	.499	.618	FCF	1.06E-005	.499	.618
INTA	-.165	-2.102**	.036	INTA	-.165	-2.098**	.036
NDTS	-.020	-.103	.918	NDTS	-.012	-.063	.950
F – Value	2.226**			F – Value	2.225**		
R Square	0.037			R Square	0.037		

* = significant at α level = 1% (t>2.575 or t<-2.575)
** = significant at α level = 5% (t>1.959 or t<-1.959)
*** = significant at α level = 10% (t>1.644 or t<-1.644)

A positively and significant result of PROF is consistent with the study of Demsetz/Lehn [1985] that produced the first in a series of papers that examine this issue, impose a linear model on the data and find that firm profitability is independent of insider ownership. After controlling for firm-fixed effects using panel data, similar findings are reported in more recent work by Himmelberg et al. [1999] for a random sample of 600 US firms over 1982–1984, and Lee/Ryu [2003] among firms trading on the Korean market. It can be interpreted that East Asian firms apply insider-investment reason, which insider may capitalize on their insights by increasing their ownership when they expect the firm profitability to improve and decrease their ownership when it happens reversely.

A negatively and significantly result of SIZE is consistent with the study of Bathala [1996] and Pedersen/Thomsen [1999] that state two reasons for a negative effect of size on general

ownership.[14] First, due to personal wealth constraints a large share is easier to hold in a small firm.[15] Second, non-diversification costs and liquidity costs increase with size.[16] Meanwhile, the statistically significant coefficient of INTA is different from previous studies, such as Pindado/de la Torre [2004], that use INTA as a measure for discretionary power of management that will favorably influence the extent of insider ownership. This result can be interpreted that the level of intangible assets discloses information about a firm's growth opportunities and, according to Myers [1977], growth opportunities can be viewed as call options whose value depends on discretionary future investment. As a result, potential external investors cannot easily assess intangible assets and, consequently, these assets exacerbate the asymmetric information problem by sending a signal that is perceived as negative by potential bondholders. In other words, bondholders' reluctance to lend to a firm with high level of intangible assets increases when a higher insider ownership seems not to guarantee the efficient use of such assets.

7.8 CONCLUDING REMARKS

Generally, the multivariate regression results support the prior researches. As the thesis has predicted it before, the external block ownership affects companies' capital structure in East Asia countries after the crisis. Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus, and it is statistically significant. In other words, the study rejects H_0 and accepts H_a stating that a higher level of external block holdings creates a higher leverage.

In the effect of managerial share ownership on financing decision, the result has the same direction of influence with some previous studies, such as research is done by Brailsford et al (2002). The signs on MSO and MSO^2 parallel the alignment of interests and entrenchment effects of managerial share ownership put forward by Jensen and Meckling (1976) and Fama and Jensen (1983) respectively. Specifically, when the level of managerial share ownership is low, an increase in managerial share ownership has the effect of aligning management and shareholders' interests. Consequently, as managerial share ownership increases from a low level, managers have less incentive to reduce the debt level, resulting in a higher level of debt (but at a decreasing rate). One thing that cannot be reached in this research is the research's results on MSO and MSO^2 are not statistically significant.

[14] This relation is empirically supported by Bathala [1996], Bergstrom/Rydqvist [1990a], Crutchley/Hansen [1989], Demsetz/Lehn [1985], and Pedersen/Thomsen [1999].
[15] See Bathala [1996, p. 133], Demsetz/Lehn [1985], Edwards/Weichenrieder [2004, p. 156], and Fama/Jensen [1983a].
[16] See Bathala [1996, p. 133] and Crutchley/Hansen [1989, p. 41]

In the relationship between external block ownership and leverage at different levels of managerial share ownership, the thesis indicates that the relationship between external block ownership and leverage is different at high and low levels of managerial share ownership. Specifically, the slope coefficient for the relationship between external block ownership and leverage at high levels of managerial share ownership is approximately zero. It is argued that the negative entrenchment effect arising from high levels of managerial share ownership is offset by the positive monitoring effect of external block holders. The results of the joint model also retain support for the curvilinear relationship between managerial share ownership and leverage.

In the relationship between leverage (as endogenous variable) and firm performance and the probability of its non-monotonic relationship under the framework of agency theory, this thesis find that the East Asian companies after the crisis apply the efficiency-risk hypothesis. It indicates that higher profit efficiency has generated a higher expected return for those companies in a given capital structure, and the higher efficiency has substituted to some degree for equity capital in protecting the firm against future crises. At the same time, some control variables demonstrate interesting results. In this study, it is obtained an inverse relationship between PROF (profitability) and leverage. It can be interpreted that probably it exists the information cost between external and internal finance. In case there is a significant information asymmetry between insiders and outsiders, firms must depend on bank loans of external fund, and as a result, debt to equity ratio becomes generally high. Furthermore, it may provide support for the proposition that due to agency conflicts, companies over-leveraged themselves, thus affecting their performance negatively.

Meanwhile, a positively and significantly relation between leverage and Tobin's Q, which performance measure is endogenous variable, is consistent with the incentive signaling approach, which debt can be used to signal the fact that firm has prospect and equity issues may be interpreted as a negative signal. It also indicates that a firm with better prospects can issue more debt than one with lower prospects, because the issue of debt by the latter will result in a higher probability of bankruptcy because of debt-servicing costs, which is a costly outcome to management. This result is also consistent with the resource constraints approach, which argues that in the situation, where an entrepreneur has limited resources, then the question of should capital be raised as equity or debt becomes an issue. The placement of equity dilutes an owner-manager's share of profits, and thereby entrepreneurial incentives, motivating on-the-job consumption. East Asian companies to avoid the sacrifice of incentive intensity since the

entrepreneur can internalize to a greater degree the benefits of superior profitability use raising debt.

Finally, in the relationship between ownership concentration and firm performance, a positively and significantly relation between EBO and Tobin's Q can be interpreted that the East Asian companies large owners are more capable of monitoring and controlling the management, thereby contributing to corporate performance. It indicates that ownership concentration has been able to increase the cost-efficiency of monitoring in the post-crisis period and due to this higher incentive has enhanced its usage. Accordingly, the controlling shareholder prefers to increase his utility rather by monitoring than by private benefits.

On the other side, a negatively and significantly influence of managerial ownership at low-level bears the entrenchment argument. It corroborates that managerial ownership at low-level has a strong and negative effect on performance and hence should not be promoted as agency device. Meanwhile a positively and significantly influence of managerial ownership at high-level supports the incentive alignment argument. It implies that managerial ownership at high-level reduces conflict of interest between shareholder and manager.

Regarding the reverse causality, a positively and significantly influence of Tobin's Q on EBO can be interpreted that the East Asian companies large owners are better informed than minority shareholders or potential investors, therefore, they use their knowledge about the firm's prospects to maximize his wealth. This finding is also consistent with the profit-debt-ownership argument. Since leverage controls the agency conflicts between shareholders and managers, the need for external capital to mediate the conflict decreases. Consequently, performance decreases the leverage, which increases the ownership concentration.

Meanwhile, in measuring the influence of firm performance on insider ownership, the regression model shown statistically insignificant results, even though the model has a significant F-value that indicates a valid model. What becomes an interesting result is the sign of performance's coefficient is consistent with some previous studies, such as Kole [1996], Rajagopalan [1996], Cho [1998], and Loderer/Martin [1997] that showed the relationship between executive compensation and performance is contingent upon the firm's strategic context and those studies supported the idea that corporate value affected ownership structure.

In general, all analysis in chapter 7 can be summarized in Table 7.12 below.

Table 7.12

The Result Summary

Hypothesis	Result	Preferred Explanation
Hypothesis 1: Firms with a higher level of external block holdings are likely to have a higher debt ratio, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 2: At low levels of managerial share ownership, managerial share ownership is positively related to a firm's debt ratio, ceteris paribus, and at high levels of managerial share ownership, managerial share ownership is negatively related to a firm's debt ratio, ceteris paribus, such that the expected relationship between management ownership and the leverage ratio is curvilinear.	Accept Hypothesis	• Statistically insignificant regression coefficient • The same influence direction with prior researches
Hypothesis 3: At low levels of managerial share ownership, the level of external block ownership is positively related to the firm's debt ratio, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 4: At high levels of managerial share ownership, the association between external block ownership and the firm's debt ratio is less significant than at low levels of managerial share ownership, ceteris paribus.	Accept Hypothesis	• Statistically insignificant regression coefficient • The same influence direction with prior researches
Hypothesis 5: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher firm performance are likely to have a higher debt ratio, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 6 ≡ Hypothesis 11: Firms with a higher level of external block holdings, low levels of managerial share ownership, and higher debt are likely to have a higher firm performance, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 7: Firms with a higher level of external block holdings and a higher debt ratio are likely to have higher firm performance, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 8: Firms with low levels of managerial share ownership and higher debt are likely to have a higher firm performance, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 9: Firms with higher debt and higher firm performance are likely to have a higher level of external block holdings, ceteris paribus.	Accept Hypothesis	• Statistically significant regression coefficient • The same influence direction with prior researches
Hypothesis 10: Firms with higher debt and higher firm performance are likely to have low levels of managerial share ownership, ceteris paribus.	Reject Hypothesis	• Statistically insignificant regression coefficient • The same influence direction with prior researches

CHAPTER 8

SUMMARY AND CONCLUSIONS OF THE EMPIRICAL ANALYSIS

This chapter will focus on the summary of the empirical results derived from the multivariate regression done on the analysis of ownership structure, capital structure, and firm value. It also includes some implications and suggestions that are proposed to improve and amplify the researches in the future.

Recent developments in agency theory suggest that the structure of corporate ownership can affect firm performance by mitigating agency conflicts between management and shareholders. In this thesis, I extend the agency framework and test hypotheses that concern the relationship between ownership structure, capital structure, and corporate performance of East Asian countries in term of post Asian Financial crisis. The results provide some interesting evidences, such as the distribution of equity ownership among corporate managers and external block holders has a significant relationship with leverage, the relation between capital structure and performance is significant and reversely causality, and the positive influence of ownership structure on performance that is not reversely causality in case of managerial ownership.

8.1 DOES EXTERNAL BLOCK OWNERSHIP HAVE INFLUENCE ON CAPITAL STRUCTURE?

When analyzing the external block ownership and its impact on capital structure, it can be concluded that leverage increases at the time of the proportion of firm's external block ownership also increase. In other words, the empirical results suggest that the level of external block ownership is positively related to leverage.

This provides support for the active monitoring hypothesis that proposes that external block holders have greater incentives and an ability to monitor management, thereby reducing managerial opportunism that may otherwise reduce leverage to a sub-optimal level in order to reduce management's non-diversifiable employment risk. The results of external block ownership and leverage relationship coincide with earlier research of these fields, which suggest that positive relation is consistent with the active monitoring hypothesis. It suggests that large

shareholders have greater incentives to monitor management due to their significant investment in the firm. The increased monitoring by external block holders is believed to be able to decrease managerial opportunism, leading to lower agency conflicts.

In general, the proportion of debt ratio has increased by 0.621 percent when external block ownership's proportion has also increased. It can be concluded that management consider firstly using debt as a source of financing as the growing existence of external block holders.

This result restates and re-emphasizes prior researches of corporate governance and any kinds related to it. It is related to this study's contribution in giving more evidences about managers' behavior. The results reflect managers' intention and ability to manage optimally the companies and explain how they react on special event, such as financial crisis, based on the situation faced.

The result reveals the condition of East Asian stock market, which is emerging, and gives insights how to optimize it for the sake of corporate strategic decision and good corporate governance. At the same time, the result encourages foreign investors to enter and use their presence as external block holders in boosting the application of good corporate governance.

8.2 DOES MANAGERIAL SHARE OWNERSHIP AFFECT ON FINANCING DECISION?

The results for the effect of managerial share ownership on financing decision indicate that managerial share ownership parallels with the alignment of interests and entrenchment effects of managerial share ownership put forward by Jensen/Meckling [1976] and Fama/Jensen [1983] respectively.

The results also indicate a curvilinear relationship between the level of managerial share ownership and leverage with the relationship reaching a maximum at 0.196% of management share ownership. This result parallels the convergence-of-interests and entrenchment hypotheses. In particular, at low levels of managerial share ownership, managerial share ownership has the effect of aligning shareholder and management interests. However, when managerial share ownership reaches a certain point (0.196% on average in this study sample) the entrenchment effect dominates the convergence-of interest's effect, leading to an increase (decrease) in managerial opportunistic behavior (debt level).

It can also explain when corporate managers hold a significant proportion of firm shares, the entrenchment effect sets in, resulting in higher managerial opportunism and therefore a lower debt ratio. In particular, with significant voting power and influence, it becomes more difficult to control managerial behavior, resulting in fewer constraints on managers' ability to adjust debt ratios to their own self-interests.

8.3 IS THERE ANY RELATIONSHIP BETWEEN EXTERNAL BLOCK OWNERSHIP AND LEVERAGE AT DIFFERENT LEVELS OF MANAGERIAL SHARE OWNERSHIP?

Furthermore, this study tries to find the relationship between external block ownership and leverage at different levels of managerial ownership. This implies that the debt ratio is a function of both managerial share ownership and external block ownership.

Specifically, it was predicted and found that at low levels of managerial share ownership, the "monitoring effect" of external block ownership is coupled with the "convergence-of-interests" effect of managerial share ownership, resulting in a positive relationship between external block ownership and leverage. However, at high levels of managerial share ownership, managerial entrenchment competes with external block holders' monitoring such that the significance of external block ownership is substantially removed. It is argued that the negative entrenchment effect arising from high levels of managerial share ownership is offset by the positive monitoring effect of external block holders.

In a series of sensitivity tests, the thesis shows that the results are generally robust to model specification. Overall, the regression results support the thesis proposition that the relationship between external block ownership and leverage at low levels of managerial share ownership is different from that at high levels, due to the interaction between managerial share ownership and external block ownership.

8.4 DOES CAPITAL STRUCTURE AFFECT CORPORATE PERFORMANCE AND HAVE REVERSE CAUSALITY EFFECT?

The results for the effect of leverage on corporate performance indicate that the East Asian companies after the crisis apply the efficiency-risk argument as hypothesized by Berger/di Patti [2002]. It implies that higher profit efficiency has generated a higher expected return for those

companies in a given capital structure, and the higher efficiency has substituted to some degree for equity capital in protecting the firm against future crises.

It indicates that firms that are more efficient are considered from lenders as more solvent and consequently they can be expected to be more leveraged than less efficient ones. Intuitively it can be concluded that East Asian companies have recovered its financial performance after the crisis and lenders view this prospect. At the same time, learning from the Asian financial crisis, the disciplining role of debt has taken on effect and ownership, control structures of corporations and institutional features of the country have significant bearing on debt governance. This result is consistent with Sarkar/Sarkar [2005] that tested the effect of Tobin's Q on leverage in Indian companies post East Asian crisis. They found that the Tobin's Q is related positively and significantly to leverage in low and high growth firms.

In analyzing the reverse causation of capital structure and corporate performance relation, the result confirms the incentive signaling approach, which debt can be used to signal the fact that firm has prospect and equity issues may be interpreted as a negative signal. Investors view the post-crisis situation is getting better and support this favorable environment by giving more opportunities to finance some good and high-growth East Asian firms. This policy seems to be applied in countries that have recovered its corporate governance system, such as Korea, Malaysia, Hong Kong, and Taiwan.

8.5 DOES OWNERSHIP STRUCTURE AFFECT CORPORATE PERFORMANCE AND HAVE REVERSE CAUSALITY EFFECT?

In this study, the influence of the existence and strength of a controlling shareholder on corporate performance is positive and significant. In other words, it shows a positive monitoring effect of the share size of the largest owner on performance. In contrast, managerial ownership at low level has a negative impact on performance due to the strategic-alignment-conflict of interest and/or myopic investment goals. In addition, management entrenches by its share-holdings against sanctioning actions which results in more managerial actions harming corporate value. Meanwhile, at high-level of managerial ownership, it has a positive impact on performance due to incentive-alignment argument. This could indicate a preference of stock-base management remuneration and a spurious expectation of an interest alignment of the management due to the shareholdings.

The reverse effects of performance on ownership only apply in the part of ownership concentration (or external block holder) and are not relevant in managerial ownership's part. A positively and significantly relation between ownership concentration and performance is consistent with the profit-debt-ownership argument. At the same time, a positive relation between firm value and large non-management block holders could indicate that monitoring of managers by large external block holders has lessened actual or expected managerial agency problems. Meanwhile, a negative effect of performance on managerial ownership indicates a contradicting to the insider-investment argument. In general, these weak results can be interpreted in four different ways. First, ownership structure is only marginally caused by performance. Second, other important factors of influence are not included in the equations, i.e. the liquidity situation and risk profile of shareholders. Thirdly, it may also be that no factors are missing but the system still suffers from endogeneity of further variables modeled as exogenous. For example, this might be the case for the financial leverage, as the endogeneity of the capital structure to performance and ownership was implied by Jensen/Meckling [1976] and Jensen [1986]. Thus, additional research has to be performed on the determinants and their effects on ownership structure.

8.6 CONTRIBUTION TO THE LITERATURE

The results provide new evidences on the relationship between ownership structure and capital structure of East Asian companies in term of post Asian Financial crisis analysis. This thesis contributes to the literature in at least five important areas. First and most important, it is able to contribute to the literature of determining effective corporate strategic decision, especially on regarding the capital structure debate. By arguing for a link between the ownership structure and capital structure and through empirical support, this thesis adds to an understanding of cross-sectional, and possibly time-series, variation in capital structure. The practical import is that ownership structure is related to the financial efficiency of a firm and hence decisions regarding the issue of equity need to consider a range of implications. These results may also help further explain the link between equity ownership, firm value, and leverage. However, further developments on this link are left for future research.

Second, the study contributes to the literature on corporate governance fields by examining the relationship between external block ownership and managerial share ownership whether it affects the financing decision or not. Inline to the prior research, the thesis finds that both external block ownership and managerial share ownership affect significantly capital structure, as the proxy of

the presence of agency problem. It can give new insight about the effect of stock market status, which is emerging and recovering from the last financial crisis.

Third, in practice, firm managers who are able to identify the optimal capital structure are rewarded by minimizing the firm cost of finance thereby maximizing the firm's revenue. If a firm's capital structure influences a firm's performance, then it is reasonable to expect that the firm's capital structure would affect the firm's health and its likelihood of default. From a creditor's point view, it is possible that the debt to equity ratio aids in understanding the banks' risk management strategies and how banks determine the likelihood of default associated with financially distressed firms. In short, the issue regarding the capital structure and firm performance are important for both academics and practitioners in analyzing the cause of Asian financial crisis and the situation in post-crisis era.

Fourthly, the course of the analysis has also opened research questions on ownership structure and performance, such as the need to explain the negative effect of performance and to examine the timing issues. The determination of the ownership structure is an object for future research. The consideration of differences in behavior of stock sales versus purchases can clarify the development of ownership structures and their interaction with performance and corporate governance. Furthermore, there are plenty of factors also assumed to be endogenous on the relation of ownership and performance. Other corporate governance mechanisms and mediating factors, such as capital structure could be included as endogenous variables in the simultaneous equations system.

Fifthly, the study contributes to the literature of capital structure, ownership structure and corporate performance debate in term of specific event and region by using data that covers seven East Asian countries during the period from the 2000 – 2001 to examine those companies and its capital structure, ownership structure and corporate performance after the Asian Financial crisis. Prior researches in this field generally have relied upon the period of pre-crisis.

8.7 IMPLICATIONS FOR REAL LIFE

The study findings reveal no silver bullet that guarantees success on applying corporate governance. As many companies have learned from experience, investors and securities markets can be fickle, and even the most carefully crafted capital structure can meet with un-optimized performance when it is formed. Nevertheless, the study does suggest that companies can substantially improve their chances of success by pursuing to some extent control the level of

managerial share ownership although control over the existence of external block holders is more difficult.

If there is one lesson to be learnt from the last crisis, it is that these corporations have become over-reliant on debt, this in part being a function of the prevailing ownership structures. One must therefore question whether firms in these countries will be able to maintain their robust patterns of recovery unless they reduce their leverage by going directly to capital markets rather than to banks.

In the global context of ownership structure and in term of East Asian companies' special characteristics, maturing a corporate governance system (which normally uses protection of minority shareholder as the proxy) in Asia are ultimately likely to develop to address their own national, legal, and business customs. The purported importance of corporate governance, however, can be seen as requiring expedience in reform. To this end, the adoption of internationally recognized standards of good governance has been posited as an appropriate and expedient method of reforming perceived problems and offers enterprises the chance to gain a share of future investment capital. Using the benchmark provides the capacity to develop domestic institutions quicker than would otherwise be possible through self-design — the quicker the better. The adoption of the OECD Principles is a small step in this direction.

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Sample Data - Seven East Asian Countries
Hong Kong - Indonesia - Korea - Malaysia - Philippines - Taiwan - Thailand

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
1	Agis	Indonesia	0.53908	0.00000	0.77570	25.49496	0.0000	-0.14780	4.14801	-0.15597	0.45643	0.67990	-0.61788	3.2385	-0.00612	0.01790	0.02667	0.00000	0	0.463926	-0.012995	-0.768031
2	Aqua Golden Mississippi	Indonesia	0.26663	0.00000	0.53600	35.24735	0.0000	0.62808	-5.33344	6.06533	0.02803	2.64780	-1.32190	3.5624	0.17208	0.00080	0.07512	0.00000	0	0.739426	0.310763	-0.301881
3	Argha Karya Prima Industry	Indonesia	1.29197	0.00000	0.89500	184.74269	0.0000	0.15534	3.12890	-30.07944	6.44116	0.66957	0.25617	5.2190	-0.16282	0.03487	0.00362	0.00000	0	1.123763	1.166685	0.116683
4	Astra Agro Lestari	Indonesia	0.50572	0.00060	0.79750	240.99768	0.0000	0.09076	-18.41094	26.93279	5.83183	10.39637	-0.68177	5.4848	0.11176	0.02420	0.04314	0.00000	0	1.089338	0.065598	0.085570
5	Astra International	Indonesia	0.91247	0.00000	0.81870	2,640.28325	1.0000	0.23607	35.21588	44.21112	34.82043	68.78339	-0.09160	7.8786	0.01674	0.01319	0.02605	0.00000	0	0.813507	-0.369922	-0.206401
6	Astra Otoparts	Indonesia	0.49326	0.00040	0.65400	180.37635	1.0000	0.24621	9.63689	25.21941	0.78677	0.87700	-0.70672	5.1950	0.13982	0.00436	0.00486	0.00000	0	0.915536	0.188512	-0.088245
7	Bakrie & Brothers	Indonesia	1.21297	0.00000	0.95030	889.11990	1.0000	0.01429	10.55792	-80.78266	84.58772	27.30281	0.19307	6.7902	-0.09086	0.09514	0.03071	0.00000	0	1.163876	0.717025	0.151755
8	Bakrie Sumatera Plantation	Indonesia	0.98332	0.00000	0.82500	82.17015	0.0000	-0.05160	0.64434	-21.23130	0.35535	0.29705	-0.01682	4.4088	-0.25838	0.00432	0.00362	0.00000	0	1.103860	-14.299956	0.098813
9	Bakrieland Development	Indonesia	0.38726	0.00000	0.31560	68.43135	0.0000	-0.40952	3.54263	-17.25280	1.01809	0.51018	-0.94865	4.2258	-0.25212	0.01488	0.00746	0.00000	0	0.550728	0.089720	-0.596515
10	BAT Indonesia	Indonesia	0.33593	0.00000	0.46000	83.87878	0.0000	-0.07226	2.14284	11.00423	0.22408	2.19907	-1.09084	4.4294	0.13119	0.00267	0.02622	0.00000	0	1.392843	0.150619	0.331347
11	Bhakti Investama	Indonesia	0.30759	0.00360	0.55560	85.81903	0.0000	1.09432	-11.61963	13.86459	0.02553	0.23897	-1.17899	4.4522	0.16156	0.00030	0.00278	0.00001	0	0.822228	0.235025	-0.195738
12	Branta Mulia	Indonesia	0.73869	0.17310	0.60130	195.37148	0.0000	0.35610	21.77589	12.75337	2.99679	0.47442	-0.30288	5.2749	0.06528	0.01534	0.00243	0.02996	0	0.733095	0.029459	-0.310480
13	Centris Multi Persada	Indonesia	0.02236	0.00000	0.32960	14.34345	1.0000	0.06245	0.75711	0.74005	0.07504	1.58336	-3.80034	2.6633	0.05160	0.00523	0.11039	0.00000	0	0.118186	0.019967	-2.135497
14	Dharmala Intiland	Indonesia	1.00992	0.00000	0.86920	212.82314	0.0000	-0.05081	6.04506	-28.93113	3.83534	3.16785	0.00987	5.3605	-0.13594	0.01802	0.01488	0.00000	0	0.214422	0.158610	-1.539808
15	Duta Pertiwi Nusantara	Indonesia	0.15209	0.01900	0.35900	14.10934	0.0000	0.26274	-0.23566	2.85281	0.61447	0.04641	-1.88329	2.6468	0.20219	0.04355	0.00329	0.00036	0	0.031111	0.164222	-3.470207
16	Duta Pertiwi Realty	Indonesia	0.55433	0.00000	0.65290	385.86027	0.0000	0.13058	32.51387	19.18737	1.79566	2.33436	-0.58999	5.9555	0.04973	0.00465	0.00605	0.00000	0	1.006529	-0.094738	0.006508
17	Dynaplast	Indonesia	0.33687	0.00540	0.43500	41.55765	0.0000	0.34618	4.58882	6.30256	1.43811	3.18511	-1.08806	3.7271	0.15166	0.03461	0.07664	0.00003	0	0.614093	0.135001	-0.487608
18	Enseval Putera	Indonesia	0.81790	0.00000	0.86410	78.94741	1.0000	0.01522	4.35224	0.05612	0.00858	0.57819	-0.20101	4.3688	0.00071	0.00011	0.00732	0.00000	0	0.809046	-0.272138	-0.211900
19	Eterindo	Indonesia	1.01172	0.00290	0.79920	287.53397	0.0000	0.12160	-9.15699	-37.76813	0.12289	0.48413	0.01165	5.6613	-0.13135	0.00043	0.00168	0.00001	0	0.967016	16.879720	-0.033540
20	Fast Food Indonesia	Indonesia	0.28719	0.00000	0.80000	19.30479	1.0000	0.38507	5.63793	4.10335	1.57984	1.82997	-1.24762	2.9604	0.21256	0.08184	0.09479	0.00000	0	1.713766	0.314769	0.538693
21	Gudang Garam	Indonesia	0.30894	0.01220	0.72640	1,120.74251	0.0000	0.34249	-336.79076	338.36099	0.41499	12.33280	-1.17461	7.0217	0.30191	0.00037	0.01100	0.00015	0	2.550179	0.367072	0.936163
22	HM Sampoerna	Indonesia	0.41483	0.02020	0.38620	880.80239	0.0000	0.31275	-8.27420	191.98988	9.09580	7.60702	-0.87990	6.7808	0.21797	0.01033	0.00864	0.00041	0	2.000359	0.265289	0.693327
23	Indonesia Prima Property	Indonesia	1.23410	0.00400	0.76700	121.82995	0.0000	-0.03555	0.27400	-8.52630	0.31680	1.33881	0.21034	4.8026	-0.06999	0.00260	0.01099	0.00002	0	0.724324	0.496623	-0.322516
24	Japfa Comfeed Indonesia	Indonesia	1.75600	0.00000	0.81060	308.02697	0.0000	0.07831	-20.14654	-103.58118	1.82067	11.13198	0.56304	5.7302	-0.33627	0.00591	0.03614	0.00000	0	1.377093	0.577452	0.319975
25	Kalbe Farma	Indonesia	0.86753	0.00000	0.77700	172.38018	1.0000	-0.14016	0.79183	17.32350	7.92030	1.53705	-0.14211	5.1497	0.10050	0.04595	0.00892	0.00000	0	1.241107	-0.150450	0.216004
26	Kedaung Indah Can	Indonesia	0.23277	0.00000	0.30930	21.82861	1.0000	0.22098	1.79080	2.79121	0.67783	0.09044	-1.45771	3.0832	0.12787	0.03105	0.00414	0.00000	0	0.496482	0.139841	-0.700208
27	Lautan Luas	Indonesia	0.38794	0.01750	0.44920	72.18359	0.0000	0.17516	-0.30863	7.24578	0.00486	2.83411	-0.94690	4.2792	0.10038	0.00007	0.03926	0.00031	0	0.464483	0.075083	-0.766831
28	Metro Supermarket Realty	Indonesia	0.60859	0.00000	0.69040	13.74459	1.0000	-0.07851	1.66315	-0.51039	0.00744	0.20155	-0.49661	2.6206	-0.03713	0.00054	0.01466	0.00000	0	0.837622	-0.340672	-0.177189
29	Modern Photo	Indonesia	0.71619	0.00000	0.56930	95.79339	1.0000	0.01526	1.02253	-3.70274	3.22418	5.79855	-0.33381	4.5622	-0.03865	0.03366	0.06053	0.00000	0	0.889290	-0.288151	-0.117332
30	Nipress	Indonesia	0.92215	0.12400	0.69060	9.12348	1.0000	0.07171	-1.94730	-0.76498	0.02108	0.78411	-0.08104	2.2109	-0.08385	0.00231	0.08594	0.01538	0	1.067976	-1.440807	0.065766
31	Pioneerindo Gourmet International	Indonesia	1.04174	0.00000	0.97330	10.49353	1.0000	0.02254	0.82935	0.13406	0.04124	0.63307	0.04089	2.3508	0.01278	0.00393	0.06033	0.00000	0	1.408016	0.315217	0.342182
32	PT Smart TBK	Indonesia	1.00703	0.00000	0.81000	404.08289	0.0000	0.41308	-36.08410	-33.63779	4.36754	1.85457	0.00700	6.0016	-0.08324	0.01081	0.00459	0.00000	0	0.721660	44.418689	-0.326200
33	Resource Alam Indonesia	Indonesia	0.40359	0.00000	0.37000	26.77765	0.0000	0.14171	1.47752	2.83173	0.16537	0.10987	-0.90734	3.2876	0.10575	0.00618	0.00410	0.00000	0	0.256128	0.081312	-1.362080
34	Sumalindo Lestari Jaya	Indonesia	0.85876	0.00000	0.83000	185.15443	1.0000	-0.01949	1.43442	-29.30064	0.95710	9.85570	-0.15227	5.2212	-0.15825	0.00517	0.05323	0.00000	0	0.886685	-1.449539	-0.120266
35	Surya Dumai Industri	Indonesia	1.22735	0.04670	0.71000	155.30481	1.0000	-0.17844	0.24232	-38.49602	0.48447	3.40447	0.20486	5.0454	-0.24787	0.00312	0.02192	0.00218	0	1.507186	2.044813	0.410244
36	Surya Semesta	Indonesia	0.64198	0.04010	0.59000	157.24356	1.0000	0.07134	-1.12465	-8.79513	4.72196	2.42274	-0.44319	5.0578	-0.05593	0.03003	0.01541	0.00161	0	0.723466	-0.327184	-0.323702
37	Tempo Scan Pacific	Indonesia	0.05808	0.00000	0.36280	147.37804	1.0000	0.31716	31.95986	45.49143	15.62768	2.05726	-2.84585	4.9930	0.30867	0.10604	0.01396	0.00000	0	0.661410	0.330191	-0.413381
38	Voksel Electric	Indonesia	1.24395	0.02770	0.82000	50.26713	1.0000	0.18372	2.57798	-7.87358	0.26842	2.23493	0.21829	3.9174	-0.15663	0.00534	0.04446	0.00077	0	0.953386	1.236796	-0.047735
39	Wicaksana Overseas International	Indonesia	1.22536	0.00003	0.83300	92.69117	1.0000	0.01437	-0.98367	-24.31966	0.54191	2.54811	0.20324	4.5293	-0.26237	0.00585	0.02749	0.00000	0	1.324709	1.593300	0.281193
40	Asia Cement Manufacturing Comp	Korea	0.51417	0.17200	0.39800	907.27115	1.0000	26.73878	29.24822	22.10277	38.13360	6.61028	-0.66520	6.8104	0.02436	0.04203	0.00729	0.02958	0	0.275184	0.017090	-1.290314
41	Asiana Airline Inc	Korea	0.75166	0.00005	0.45190	2,899.28063	1.0000	10.18188	255.93281	67.37391	12.50830	126.27905	-0.28547	7.9722	0.02324	0.00431	0.04356	0.00000	0	0.771049	-0.182821	-0.260004
42	AUK	Korea	0.36645	0.18840	0.26250	92.94387	1.0000	27.71621	62.62213	16.86798	0.04585	21.02530	-1.00390	4.5320	0.18149	0.00049	0.22621	0.03549	0	0.806219	0.267516	-0.215399
43	Bing-Grae Company Limited	Korea	0.44781	0.30520	0.10050	339.10959	0.0000	-0.96454	6.23862	22.90455	2.21316	7.50392	-0.80340	5.8263	0.06754	0.00653	0.02213	0.09315	1	0.477185	0.067063	-0.739850
44	Bo LAK Company	Korea	0.39375	0.00180	0.30310	33.00223	0.0000	-6.38167	-1.07922	-2.23886	0.61895	2.45389	-0.93204	3.4966	-0.06784	0.01875	0.07436	0.00000	0	0.571759	-0.140213	-0.559037
45	Boryung Pharmaceutical Company	Korea	0.30591	0.00140	0.47760	97.84272	1.0000	-0.99069	5.43077	10.17971	0.24909	3.41656	-1.18447	4.5834	0.10404	0.00255	0.03492	0.00000	0	0.156340	0.080874	-1.855721
46	Bukwang Pharmaceutical Compan	Korea	0.15348	0.36000	0.16020	89.84154	1.0000	1.26994	19.57714	15.89340	0.90816	2.02864	-1.87418	4.4980	0.17690	0.01011	0.02258	0.12960	1	1.203762	0.211962	0.185452
47	Byucksan Corp.	Korea	0.57925	0.14960	0.71550	169.91896	1.0000	-5.99578	9.48949	13.19201	0.63124	0.67491	-0.54602	5.1353	0.07764	0.00371	0.00397	0.02238	0	0.291130	0.055199	-1.233986
48	Cambridge Members	Korea	0.15258	0.23890	0.30750	83.12944	1.0000	2.17372	5.61466	14.32382	0.01084	1.78331	-1.88006	4.4204	0.17231	0.00013	0.02145	0.05707	1	0.220387	0.169003	-1.512370
49	Cheil Industries Inc	Korea	0.46817	0.00001	0.39180	1,271.06324	0.0000	-5.25420	72.83557	136.53043	59.22451	56.50988	-0.75892	7.1476	0.10741	0.04659	0.04446	0.00000	0	0.453997	0.073806	-0.789664
50	Cho Kwang Leather Company Ltd	Korea	0.55532	0.15700	0.34890	118.05370	1.0000	7.14227	10.90117	7.80796	0.15113	1.80697	-0.58820	4.7711	0.06614	0.00128	0.01531	0.02465	0	0.263041	0.021212	-1.335445
51	Chong Kun Dang Pharmaceutical	Korea	0.57347	0.17810	0.68490	459.73676	1.0000	2.74436	-20.96126	35.37233	14.40474	18.46482	-0.55605	6.1307	0.07694	0.03133	0.04016	0.03172	0	0.329916	0.015938	-1.108919
52	Choong Nam Spinning Company L	Korea	0.64677	0.00000	0.04970	360.38024	0.0000	-4.87120	-5.85296	-4.54545	0.09723	14.27668	-0.43576	5.8872	-0.01261	0.00027	0.03962	0.00000	0	0.557024	-0.221497	-0.585147
53	Chosun Fire Brick Industry Compan	Korea	0.46686	0.33040	0.15540	262.50565	0.0000	-8.51877	21.27551	28.10913	3.27494	16.25606	-0.76173	5.5703	0.10708	0.01248	0.06193	0.10916	1	0.418594	0.126211	-0.870853
54	Chung Ho Comnet Company	Korea	0.11948	0.24180	0.06990	134.95178	1.0000	9.05392	8.20237	11.87747	2.84743	2.90277	-2.12457	4.9049	0.08801	0.02110	0.02151	0.05847	1	0.398387	0.096112	-0.920331
55	CJ Home Shopping	Korea	0.02966	0.00000	0.25060	131.27905	1.0000	15.41958	9.01502	13.21028	0.00711	3.03320	-3.51795	4.8773	0.10063	0.00005	0.02310	0.00000	0	0.874867	0.111732	-0.133683
56	Crown Confectionary	Korea	0.75692	0.26300	0.36920	305.32411	0.0000	-2.80858	22.64427	21.01897	1.63636	18.36917	-0.27849	5.7214	0.06884	0.00536	0.06016	0.06917	1	0.497063	-0.011278	-0.699039
57	Dae Hyun Company	Korea	0.72057	0.24280	0.50560	103.93992	1.0000	-16.60711	0.09960	8.01028	0.07589	3.31146	-0.32771	4.6438	0.07707	0.00073	0.03186	0.05895	1	0.432262	0.059574	-0.838724
58	Daedong Industrial Company Limit	Korea	0.22610	0.17560	0.11700	215.34545	1.0000	-4.34670	10.47273	12.44980	0.49802	2.68063	-1.48679	5.3722	0.05781	0.00231	0.01245	0.03084	0	0.224447	0.049095	-1.494116
59	Daeduck Electronics Limited	Korea	0.14406	0.16840	0.02970	320.99572	1.0000	1.50683	63.19763	67.08570	0.11260	38.82926	-1.93754	5.7714	0.20899	0.00035	0.12097	0.02836	0	0.836090	0.198964	-0.179019
60	Daehan City Gas	Korea	0.12015	0.06380	0.57560	361.78824	0.0000	12.23874	-1.00934	26.45221	1.53442	14.04345	-2.11897	5.8911	0.07312	0.00424	0.03882	0.00407	0	0.405040	0.079882	-0.903770

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
61	Daehan Flour Mills Company	Korea	0.43564	0.14560	0.11240	431.98411	0.0000	3.24511	21.87019	46.71621	3.74892	10.33016	-0.83094	6.0684	0.10814	0.00868	0.02391	0.02120	0	0.086325	0.111155	-2.449632
62	Daehan Pulp Company Limited	Korea	0.74329	0.24000	0.53610	405.79209	0.0000	-11.09029	-25.78419	32.41581	0.21028	0.78893	-0.29666	6.0058	0.07988	0.00052	0.00194	0.05760	1	0.593849	-0.033561	-0.521130
63	Daelim Industrial Company Ltd	Korea	0.41487	0.00000	0.33550	3,230.09249	1.0000	-11.56025	461.99368	178.25217	52.68775	7.57391	-0.87979	8.0803	0.05518	0.01631	0.00234	0.00000	0	0.158848	0.022903	-1.839811
64	Daerim Corp.	Korea	0.73762	0.00000	0.66960	286.07560	0.0000	-7.96911	-38.53066	44.87854	0.33839	8.52206	-0.30433	5.6563	0.15688	0.00118	0.02979	0.00000	0	0.287088	0.291473	-1.247968
65	Daesang Farmsco	Korea	0.41437	0.01000	0.38570	78.37405	0.0000	-0.94577	1.14977	3.28582	0.20518	2.20098	-0.88100	4.3615	0.04192	0.00262	0.02808	0.00010	0	0.250506	0.019684	-1.384273
66	Daesung Industrial Company Limite	Korea	0.49778	0.27870	0.33000	843.88952	0.0000	-6.46675	-69.82617	43.27423	6.51850	4.61460	-0.69760	6.7380	0.05128	0.00772	0.00547	0.07767	1	0.343995	0.034738	-1.067129
67	Daewon Chemical	Korea	0.37147	0.27160	0.20360	62.47255	0.0000	-27.21508	-9.99899	3.82820	0.46145	3.20545	-0.99030	4.1347	0.06128	0.00739	0.05131	0.07377	1	0.313705	0.032598	-1.159303
68	Daewoo Motor Sales	Korea	0.44358	0.02000	0.24800	1,396.17075	1.0000	-1.89412	62.31542	153.04664	0.01423	9.19051	-0.81288	7.2415	0.10962	0.00001	0.00658	0.00040	0	0.292693	0.097752	-1.228630
69	Danam Communications Inc	Korea	0.43243	0.17740	0.16180	60.43991	1.0000	61.69487	-3.78829	9.20645	0.00258	1.42543	-0.83834	4.1016	0.15232	0.00004	0.02358	0.03147	0	0.949456	0.276307	-0.051866
70	Daou Technology	Korea	0.07138	0.14960	0.31790	174.03320	1.0000	-7.52145	-30.06482	-18.32174	0.09170	0.67510	-2.63970	5.1592	-0.10528	0.00053	0.00388	0.02238	0	0.430116	-0.086710	-0.843699
71	Digital Power Communications	Korea	0.13470	0.14150	0.03170	70.95731	1.0000	5.75919	1.30751	10.36759	0.40553	2.00474	-2.00470	4.2621	0.14611	0.00572	0.02825	0.02002	0	0.210203	0.147056	-1.559683
72	Dong IL Rubber Belt Company	Korea	0.28757	0.47820	0.10500	90.89328	0.0000	-3.53395	7.68775	12.03399	0.36206	4.08696	-1.24630	4.5097	0.13240	0.00398	0.04496	0.22868	1	0.351305	0.144107	-1.046102
73	Dong WHA Pharmaceutical Compo	Korea	0.39854	0.05130	0.26970	206.98924	1.0000	-14.79687	11.90986	1.31826	0.26460	3.10179	-0.91994	5.3327	0.00637	0.00128	0.01499	0.00263	0	0.137291	-0.060039	-1.985655
74	Donga Pharmaceutical Company	Korea	0.54932	0.10000	0.83620	429.32490	1.0000	-4.91336	15.01186	40.97945	2.28379	3.02213	-0.59908	6.0622	0.09545	0.00532	0.00704	0.01000	0	0.466414	0.111969	-0.762682
75	Dongbu Steel Company Limited	Korea	0.65303	0.05760	0.41900	2,476.94308	0.0000	19.55056	-46.31542	115.63320	22.64585	1.85850	-0.42613	7.8148	0.04668	0.00914	0.00075	0.00332	0	0.584994	-0.003363	-0.536154
76	Dongjin Semichem Company Limite	Korea	0.51106	0.24320	0.26820	149.79083	0.0000	15.22472	-15.15473	6.90259	3.94060	6.55535	-0.67127	5.0092	0.04608	0.02631	0.04376	0.05915	1	0.611742	0.017858	-0.491444
77	Dongsung Chemical Company Limi	Korea	0.40518	0.21460	0.31500	201.24111	0.0000	-6.69995	-5.08032	13.30119	0.15731	3.60769	-0.90343	5.3045	0.06610	0.00078	0.01793	0.04605	1	0.196166	0.047786	-1.628796
78	Dongwha Holdings	Korea	0.22446	0.50610	0.14910	237.45771	1.0000	9.72575	3.78902	12.60353	1.12727	7.66395	-1.49405	5.4700	0.05308	0.00475	0.03227	0.25614	1	0.383321	0.032240	-0.958883
79	Dongwon Industries Company Limit	Korea	0.72389	0.00000	0.57390	218.73992	0.0000	-59.76046	-32.74783	20.92332	0.68775	13.59368	-0.32311	5.3879	0.09565	0.00314	0.06215	0.00000	0	0.674862	0.050008	-0.393247
80	Dongwon Metal	Korea	0.55947	0.24170	0.05710	105.32189	0.0000	9.58428	-1.67383	10.43927	2.41303	5.73626	-0.58077	4.6570	0.09912	0.02291	0.05446	0.05842	1	0.538902	0.164473	-0.618222
81	Dongyang Mechatronic	Korea	0.45821	0.30800	0.37970	89.60079	1.0000	-11.77526	-5.15810	-1.99763	0.08617	4.64111	-0.78044	4.4954	-0.02229	0.00096	0.05180	0.09486	1	0.338504	-0.146893	-1.083220
82	Doosan Heavy Industries And Cons	Korea	0.36658	0.00000	0.35970	2,989.37224	1.0000	-8.93720	139.73232	51.58744	55.00661	86.92719	-1.00355	8.0028	0.01726	0.01840	0.02908	0.00000	0	0.174049	-1.675496	-1.748416
83	Duck Yang Industry	Korea	0.26758	0.06800	0.22710	91.77470	1.0000	25.09105	-5.93913	4.70830	7.53281	5.01265	-1.31835	4.5193	0.05130	0.08208	0.05462	0.00462	0	0.715717	0.076392	-0.334470
84	Duzon Digital Ware	Korea	0.02200	0.05270	0.14040	19.02436	1.0000	415.80586	2.25132	4.17138	1.36934	0.51076	-3.81681	2.9457	0.21927	0.07198	0.02685	0.00278	0	0.774549	0.215046	-0.255474
85	E1 Corp.	Korea	0.58343	0.11860	0.62570	527.16885	0.0000	25.04523	17.13089	34.22164	9.50789	29.96893	-0.53883	6.2675	0.06492	0.01804	0.05685	0.01407	0	0.483330	0.067503	-0.727055
86	Enex	Korea	0.40907	0.13820	0.39340	95.93597	0.0000	-14.70178	-7.80158	0.33281	1.40791	2.31383	-0.89388	4.5637	0.00347	0.01468	0.02412	0.01910	0	0.293725	-0.063706	-1.225111
87	F & F	Korea	0.23439	0.37820	0.12000	104.34387	1.0000	26.51076	3.04427	17.24743	0.90593	2.40791	-1.45078	4.6477	0.16529	0.00868	0.02308	0.14304	1	0.202474	0.184832	-1.597143
88	FNC Kolon	Korea	0.55199	0.00940	0.51660	638.38330	1.0000	-18.05752	-70.75623	34.95271	1.67849	5.67907	-0.59423	6.4589	0.05475	0.00263	0.00890	0.00009	0	0.287560	-0.014693	-1.246324
89	Green Cross Holdings Corp.	Korea	0.21379	0.16860	0.29180	342.28416	1.0000	42.90783	24.87619	60.15592	1.23902	8.98836	-1.54275	5.8356	0.17575	0.00362	0.02626	0.02843	0	0.351824	0.195930	-1.044624
90	Haansoft Inc	Korea	0.54510	0.00820	0.13350	102.21806	1.0000	57.67210	-24.00590	-15.11143	7.50360	1.36409	-0.60679	4.6271	-0.14784	0.07341	0.01334	0.00007	0	1.142620	-0.370950	0.133324
91	Halla Climate Control	Korea	0.40137	0.00000	0.69990	495.12411	1.0000	16.17388	55.26324	84.63794	0.32648	33.77708	-0.91287	6.2048	0.17094	0.00066	0.06822	0.00000	0	0.505725	0.263181	-0.681763
92	Halla Engineering & Construction C	Korea	0.57092	0.16470	0.12040	579.69486	1.0000	-7.61255	-27.65692	2.54466	0.26245	4.17154	-0.56051	6.3625	0.00439	0.00045	0.00720	0.02713	0	0.353363	-0.165894	-1.040259
93	Han DOK Pharmaceutical	Korea	0.37021	0.06620	0.54910	172.46008	1.0000	20.87862	-1.41818	11.57708	2.25534	5.90751	-0.99367	5.1502	0.06713	0.01308	0.03425	0.00438	0	0.214533	0.034486	-1.539291
94	Handsome	Korea	0.33409	0.24280	0.05210	170.29752	1.0000	20.23087	16.06185	33.18739	2.13456	3.72976	-1.09635	5.1375	0.19488	0.01253	0.02190	0.05895	1	0.077919	0.228084	-2.552086
95	Hanil E-WHA Company	Korea	0.55215	0.23390	0.35400	142.31383	1.0000	8.09623	19.28142	3.55731	0.95968	12.00632	-0.59394	4.9580	0.02500	0.00674	0.08437	0.05471	1	0.474325	0.059189	-0.745863
96	Hanil Iron And Steel Ltd	Korea	0.25097	0.00000	0.53950	122.96917	0.0000	139.82383	-9.30198	6.76126	0.00079	3.52806	-1.38244	4.8119	0.05498	0.00001	0.02869	0.00000	0	0.163841	0.050779	-1.808859
97	Hanjin Transportation Company Li	Korea	0.45544	0.05910	0.11780	617.78972	1.0000	7.18029	-8.32095	26.85455	18.49012	14.32885	-0.78648	6.4261	0.04347	0.02993	0.02319	0.00349	0	0.389695	0.020187	-0.942390
98	Hankook Tire Company Limited	Korea	0.54446	0.21720	0.71890	1,987.18103	0.0000	4.55094	-233.42213	104.16206	21.11067	118.30988	-0.60797	7.5945	0.05242	0.01062	0.05954	0.04718	1	0.526681	0.025941	-0.641160
99	Hankuk Electric Glass Company	Korea	0.01242	0.00000	0.37800	430.65375	1.0000	14.99268	163.35336	201.61265	0.02688	46.16285	-4.38820	6.0653	0.46815	0.00006	0.10719	0.00000	0	0.652870	0.429517	-0.426378
100	Hankuk Paper Manufacturing Com	Korea	0.28408	0.18910	0.23150	246.96206	0.0000	-5.93756	-43.18103	6.29249	3.75494	0.94466	-1.25850	5.5092	0.02548	0.01520	0.00383	0.03576	0	0.079981	0.005494	-2.525968
101	Hanmi Pharmaceutical Industry Co	Korea	0.55189	0.19820	0.35290	192.80968	1.0000	5.74323	5.17270	19.11661	9.05993	4.78965	-0.59441	5.2617	0.09915	0.04699	0.02484	0.03928	0	0.294027	0.120889	-1.224085
102	Hansol Chemical Company Limited	Korea	0.50032	0.11920	0.17600	215.58735	0.0000	-11.95330	-10.14229	15.31383	1.97787	4.98340	-0.69251	5.3734	0.07103	0.00917	0.02312	0.01421	0	0.462455	0.026033	-0.771206
103	Hansol LCD	Korea	0.65718	0.00000	0.11490	189.93360	1.0000	2.55813	-40.03636	8.37391	10.13992	10.69565	-0.41979	5.2467	0.04409	0.05339	0.05631	0.00000	0	0.477581	0.004462	-0.739021
104	Hansol Paper Company Limited	Korea	0.74246	0.03310	0.35290	3,342.83636	0.0000	15.66054	-74.60711	205.25138	181.54704	47.73755	-0.29779	8.1146	0.06140	0.05431	0.01428	0.00110	0	0.453153	0.013392	-0.791526
105	Hanssem Company	Korea	0.49013	0.23440	0.23230	143.63320	1.0000	0.18085	-5.72885	11.76443	5.65059	4.63320	-0.71309	4.9673	0.08191	0.03934	0.03226	0.05494	1	0.406896	0.011397	-0.899198
106	Hanwha Chemical	Korea	0.61834	0.00000	0.38300	3,735.97549	0.0000	11.34688	143.58814	273.65375	96.53281	129.06245	-0.48071	8.2258	0.07325	0.02584	0.03455	0.00000	0	0.561193	0.001184	-0.577690
107	Hanwha Corp.	Korea	0.82494	0.00000	0.30720	6,692.81344	1.0000	113.60396	-6.60949	268.54941	209.70040	56.56126	-0.19245	8.8088	0.04013	0.03133	0.00845	0.00000	0	0.600166	0.124401	-0.510548
108	Hite Brewery Company Limited	Korea	0.51957	0.21770	0.40220	1,411.63874	0.0000	6.84667	254.88775	154.08775	28.16047	42.51146	-0.65475	7.2525	0.10916	0.01995	0.03011	0.04739	1	0.675617	0.110383	-0.392128
109	Honam Petrochemicals Corp.	Korea	0.14901	0.00000	0.57280	1,058.97573	0.0000	1.05375	114.84558	45.77466	2.73389	85.38410	-1.90373	6.9651	0.04323	0.00258	0.08063	0.00000	0	0.331035	0.041992	-1.105531
110	Hotel Shilla	Korea	0.33477	0.00000	0.17700	553.33142	1.0000	1.16649	2.02612	47.74443	0.03989	10.72363	-1.09431	6.3160	0.08629	0.00007	0.01938	0.00000	0	0.454087	0.036282	-0.789466
111	Huneed Technology Company	Korea	0.79545	0.27300	0.08700	123.08746	1.0000	-19.35609	0.16107	-24.03829	7.10276	10.13391	-0.22885	4.8129	-0.19529	0.05771	0.08233	0.07453	1	0.784095	-1.558878	-0.243225
112	Hwa Sung Industrial Company Limi	Korea	0.70731	0.18370	0.08140	649.76917	1.0000	-9.10158	43.69644	37.50593	0.10751	9.85613	-0.34628	6.4766	0.05772	0.00017	0.01517	0.03375	0	0.512617	0.026565	-0.668225
113	Hwacheon Machine Tool	Korea	0.34114	0.37670	0.14320	94.19210	1.0000	42.33215	0.27935	6.64327	1.89479	3.44423	-1.07545	4.5453	0.07053	0.02012	0.03657	0.14190	1	0.240967	0.048615	-1.423093
114	Hyosung Corporation	Korea	0.62833	0.00000	0.36480	4,597.33360	0.0000	-9.98042	-273.61265	322.90593	5.96601	182.46561	-0.46469	8.4332	0.07024	0.00130	0.03969	0.00000	0	0.400223	0.027229	-0.915733
115	Hyundai Corp.	Korea	0.73669	0.00000	0.52230	1,412.87036	1.0000	-15.85599	113.02688	17.54308	3.60395	3.21502	-0.30558	7.2534	0.01242	0.00255	0.00228	0.00000	0	0.312001	-0.252086	-1.164749
116	Hyundai Elevator	Korea	0.52787	0.03910	0.40800	223.03162	1.0000	-30.38459	15.69644	21.02055	1.99051	6.85455	-0.63891	5.4073	0.09425	0.00892	0.03073	0.00153	0	0.357110	0.106802	-1.029711
117	Hyundai Engineering & Constructio	Korea	1.24489	0.00000	0.84300	5,742.41107	1.0000	-21.96281	497.38577	-1924.97233	2.26561	64.73992	0.21904	8.6556	-0.33522	0.00039	0.01127	0.00000	0	0.591048	3.290758	-0.525858
118	Hyundai Heavy Industries	Korea	0.67539	0.00000	0.24650	10,593.96996	1.0000	-8.46526	1071.57708	248.10119	128.41186	399.40079	-0.39246	9.2680	0.02342	0.01212	0.03770	0.00000	0	0.549057	-0.058003	-0.599552
119	Hyundai Hysco Company Ltd	Korea	0.47678	0.00000	0.74700	1,653.03004	0.0000	-7.78557	72.89170	54.73676	28.62688	68.55178	-0.74070	7.4104	0.03311	0.01732	0.04147	0.00000	0	0.472140	-0.096002	-0.750480
120	Hyundai Merchant Marine	Korea	0.84094	0.01500	0.50280	6,067.20777	1.0000	5.82770	-590.87226	8.30571	184.70877	177.41745	-0.17323	8.7107	0.00137	0.03044	0.02924	0.00023	0	0.309586	-0.491965	-1.172519
121	Hyundai Mipo Dockyard Co	Korea	0.52050	0.00000	0.48230	858.20711	1.0000	42.45489	-82.97708	27.30672	8.67668	24.33992	-0.65296	6.7548	0.03182	0.01011	0.02836	0.00000	0	0.388622	0.029452	-0.945147
122	Hyundai Motor Company Limited	Korea	0.61342	0.04950	0.25160	24,580.29565	1.0000	26.11088	-2.61739	1463.73992	1549.95731	1101.68142	-0.48870	10.1097	0.05955	0.06306	0.04482	0.00245	0	0.545988	0.083267	-0.605158
123	IL Dong Pharmaceutical Company	Korea	0.62370	0.10430	0.25090	170.83287	1.0000	36.17651	8.08324	16.96901	1.28478	0.79168	-0.47209	5.1407	0.09933	0.00752	0.00463	0.01088	0	0.073577	0.115668	-2.609424
124	IL Jin Electric	Korea	0.66871	0.17630	0.04460	197.06920	1.0000	48.07279	-16.92506	8.46897	2.04970	9.39898	-0.40240	5.2836	0.04297	0.01040	0.04769	0.03108	0	0.308699	0.082493	-1.175387

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
125	Ilyang Pharmaceutical Company Li	Korea	0.35657	0.25810	0.24460	182.35489	1.0000	-4.49343	-1.06124	12.64983	0.93828	2.59316	-1.03123	5.2060	0.06937	0.00515	0.01422	0.06662	1	0.709336	0.029995	-0.343426
126	Insung Information Company	Korea	0.04880	0.30950	0.06630	79.20436	1.0000	53.37488	1.02307	4.19213	4.62650	1.66352	-3.01994	4.3720	0.05293	0.05841	0.02100	0.09579	1	0.608210	0.017888	-0.497236
127	Intelligent Digital Integrated Secur	Korea	0.01374	0.19030	0.25820	9.24980	1.0000	159.78074	0.35810	2.88538	0.00158	0.12885	-4.28762	2.2246	0.31194	0.00017	0.01393	0.03621	0	2.030408	0.045879	0.708237
128	ISU Chemical Company Limited	Korea	0.38405	0.00100	0.51700	354.53360	0.0000	6.19341	21.65613	25.81344	4.21265	16.68458	-0.95697	5.8708	0.07281	0.01188	0.04706	0.00000	0	0.062178	0.172297	-2.777753
129	Jahwa Electronics	Korea	0.15802	0.31470	0.07670	81.97708	1.0000	15.35900	8.04032	14.89802	1.06403	0.46640	-1.84502	4.4064	0.18173	0.01298	0.00569	0.09904	1	1.146490	0.057294	0.136705
130	Jusung Engineering Company	Korea	0.00327	0.28520	0.02790	158.76601	1.0000	18.61785	-22.68617	7.12174	13.50119	5.73043	-5.72235	5.0674	0.04486	0.08504	0.03609	0.08134	1	0.509428	0.198193	-0.674467
131	Kangwong Land	Korea	0.08587	0.00000	0.42610	267.26719	1.0000	45.17906	16.16206	45.87352	4.18419	5.41818	-2.45491	5.5882	0.17164	0.01566	0.02027	0.00000	0	0.054009	0.044948	-2.918606
132	KC Technology Corp.	Korea	0.00809	0.35840	0.07960	63.33327	1.0000	39.09958	-1.20114	4.13557	3.10607	1.37876	-4.81672	4.1484	0.06530	0.04904	0.02177	0.12845	1	0.085513	0.131069	-2.459088
133	Kctc	Korea	0.15237	0.10970	0.16680	109.05455	1.0000	87.17972	-1.65138	2.76838	10.88617	4.84111	-1.88146	4.6918	0.02539	0.09982	0.04439	0.01203	0	0.120333	0.059005	-2.117495
134	Kedcom	Korea	0.51153	0.11260	0.31890	65.02530	1.0000	9.97312	-5.02213	3.03320	1.89091	1.76047	-0.67035	4.1748	0.04665	0.02908	0.02707	0.01268	0	0.257474	0.009294	-1.356838
135	Keyang Electric Machinery Compa	Korea	0.10093	0.17820	0.21470	94.79921	1.0000	-4.25734	2.20316	10.15731	0.06403	5.29407	-2.29335	4.5518	0.10715	0.00068	0.05585	0.03176	0	0.255949	0.006503	-1.362776
136	Kia Motors Corporation	Korea	0.45740	0.00000	0.53470	6,579.89328	1.0000	5.47943	-768.89486	291.46719	71.07668	26.55099	-0.78219	8.7918	0.04430	0.01080	0.00404	0.00000	0	0.003316	0.095090	-5.709030
137	Kiswire	Korea	0.17013	0.22820	0.46610	562.86640	0.0000	45.31805	-7.06008	20.34704	0.69091	18.98577	-1.77118	6.3330	0.03615	0.00123	0.03373	0.05208	1	9.708464	0.047972	2.272998
138	KMW	Korea	0.52699	0.38150	0.25770	155.53123	1.0000	131.82161	-31.67352	4.23320	12.51542	9.78024	-0.64057	5.0468	0.02722	0.08047	0.06288	0.14554	1	0.952147	0.037224	-0.049036
139	Knowledge On	Korea	0.15027	0.24660	0.22310	53.16768	1.0000	114.94600	-9.94360	4.41569	2.34285	2.27293	-1.89531	3.9735	0.08305	0.04407	0.04275	0.06081	1	2.284264	0.016545	0.826044
140	Kodenshi Korea Corp.	Korea	0.47366	0.25940	0.36650	89.50556	1.0000	25.90942	-12.70663	5.81950	0.01629	0.20176	-0.74727	4.4943	0.06502	0.00018	0.00225	0.06729	1	0.356753	0.089393	-1.030711
141	Kodicom	Korea	0.05112	0.00000	0.22500	9.75719	1.0000	287.57287	-5.28724	0.66855	0.29186	0.11193	-2.97353	2.2780	0.06852	0.02991	0.01147	0.00000	0	4.764405	0.088597	1.561173
142	Kolon Engineering & Construction C	Korea	0.64492	0.00761	0.28530	787.94941	1.0000	16.85669	-30.72885	17.67036	0.95257	8.38182	-0.43863	6.6694	0.02243	0.00121	0.01064	0.00006	0	0.546317	0.008544	-0.604556
143	Kolon Industries Company Limited	Korea	0.58677	0.17420	0.13450	1,900.82609	0.0000	8.56381	-86.60395	78.39289	6.53281	80.53439	-0.53311	7.5500	0.04124	0.00344	0.04237	0.03035	0	0.374911	-0.021948	-0.981066
144	Korea Circuit Company	Korea	0.40875	0.19320	0.01790	176.18541	1.0000	25.49972	-18.83443	22.91226	1.44882	19.82454	-0.89465	5.1715	0.13005	0.00822	0.11252	0.03733	0	0.241808	0.154909	-1.419612
145	Korea Cottrell	Korea	0.23908	0.20300	0.21210	45.70770	1.0000	-9.99761	-1.90501	-4.79539	0.08373	1.65934	-1.43098	3.8223	-0.10491	0.00183	0.03630	0.04121	1	0.142638	-0.214714	-1.947445
146	Korea Data Systems	Korea	0.59636	0.00000	0.33500	581.61186	1.0000	25.63933	-97.38656	39.87826	6.97866	9.36601	-0.51691	6.3658	0.06857	0.01200	0.01610	0.00000	0	0.143964	0.039945	-1.938193
147	Korea Electric Power Corp.	Korea	0.45226	0.00000	0.69960	51,738.38656	0.0000	1.99744	-2787.51146	2835.15178	471.20553	4037.50435	-0.79349	10.8540	0.05480	0.00911	0.07804	0.00000	0	0.646408	0.046396	-0.436325
148	Korea Electric Terminal	Korea	0.04107	0.21670	0.22910	99.61711	1.0000	14.62508	-0.40466	19.28187	0.01872	0.76888	-3.19241	4.6013	0.19356	0.00019	0.00772	0.04696	1	0.716608	0.196193	-0.333226
149	Korea Express Company Limited	Korea	0.37822	0.00000	0.26460	962.97787	1.0000	-4.92177	34.13043	52.90672	8.03636	31.69723	-0.97228	6.8700	0.05494	0.00835	0.03292	0.00000	0	0.265317	0.032914	-1.326828
150	Korea Fine Chemicals	Korea	0.13310	0.08980	0.47090	141.49814	0.0000	10.02711	10.52883	24.16869	0.35176	12.28338	-2.01662	4.9523	0.17081	0.00249	0.08681	0.00806	0	0.554877	0.164923	-0.589009
151	Korea Flange Company Limited	Korea	0.85361	0.23490	0.32300	1,081.57549	1.0000	7.24491	-23.16601	69.88696	9.47036	50.72648	-0.15828	6.9862	0.06462	0.00876	0.04690	0.05518	1	0.437497	0.066549	-0.826686
152	Korea Gas Corp.	Korea	0.69550	0.00000	0.51320	6,678.09170	0.0000	20.47498	-1079.23953	354.58893	49.27194	296.75889	-0.36313	8.8066	0.05310	0.00738	0.04444	0.00000	0	0.651261	0.041878	-0.428845
153	Korea Iron & Steel Company Limit	Korea	0.40880	0.26920	0.16640	503.60316	0.0000	-5.54708	-8.99209	8.56126	0.04980	14.91937	-0.89452	6.2218	0.01700	0.00010	0.02963	0.07247	1	0.350704	-0.029991	-1.047812
154	Korea Kumho Petrochemicals	Korea	0.90932	0.51950	0.13470	7,887.11858	0.0000	4.23771	115.24980	282.86324	180.06640	341.47668	-0.09506	8.9730	0.03586	0.02283	0.04330	0.26988	1	0.448091	-0.234805	-0.802758
155	Korea Line Corp.	Korea	0.82598	0.00830	0.52030	947.58972	1.0000	69.48911	-346.29249	-21.76364	0.15652	39.04111	-0.19118	6.8539	-0.02297	0.00017	0.04120	0.00007	0	0.190813	-1.396792	-1.656460
156	Korea Petroleum Industrial Compa	Korea	0.41506	0.08800	0.17790	33.01128	0.0000	3.27401	-2.14465	2.89379	0.24071	1.56986	-0.87934	3.4968	0.08766	0.00729	0.04756	0.00774	0	0.291653	0.068517	-1.232190
157	Korea Polyol	Korea	0.12132	0.23210	0.37850	141.72038	0.0000	0.25611	9.39866	24.62812	0.15777	4.24631	-2.10935	4.9539	0.17378	0.00111	0.02996	0.05387	1	0.137676	0.155185	-1.982850
158	Korea Refractories	Korea	0.23180	0.00000	0.67050	25.47209	1.0000	-7.13665	-1.60818	0.51805	0.08893	0.20074	-1.46189	3.2376	0.02034	0.00349	0.00788	0.00000	0	0.591113	0.013098	-0.525749
159	Korea Zinc Company Limited	Korea	0.60471	0.04330	0.25530	1,358.65771	0.0000	6.93060	39.80791	31.79684	16.05455	52.26008	-0.50301	7.2143	0.02340	0.01182	0.03846	0.00187	0	0.596804	0.001438	-0.516166
160	Korean Air Lines Company Limited	Korea	0.57967	0.10940	0.56040	10,496.07668	1.0000	5.96013	-774.88142	-219.62925	31.09091	525.43399	-0.54529	9.2588	-0.02092	0.00296	0.05006	0.01197	0	0.452594	-0.126915	-0.792760
161	KT Corp.	Korea	0.42497	0.00000	0.03740	21,813.61897	0.0000	8.80024	-1602.58261	1567.95731	1569.34466	2745.13518	-0.85574	9.9903	0.07188	0.07194	0.12585	0.00000	0	1.074706	0.087142	0.072047
162	KT Freetel Limited	Korea	0.58460	0.00000	0.48700	2,468.35968	0.0000	38.98131	-289.05692	201.05771	9.83162	198.08933	-0.53682	7.8113	0.08145	0.00398	0.08025	0.00000	0	1.987899	0.104727	0.687078
163	Kukje Preferred	Korea	0.13313	0.00000	0.49120	266.16032	1.0000	-21.55595	4.60394	212.75239	0.44197	4.35277	-2.01642	5.5841	0.79934	0.00166	0.01635	0.00000	0	0.080708	0.042887	-2.516914
164	Kunsul Chemical Industry Company	Korea	0.38223	0.47090	0.11200	220.31937	0.0000	-4.40642	8.58577	12.92411	0.29881	14.38972	-0.96173	5.3951	0.05866	0.00136	0.06531	0.22175	1	0.290173	0.035430	-1.237279
165	Kwang Dong Pharmaceutical Com	Korea	0.29163	0.00000	0.09100	125.20079	1.0000	-27.97983	-26.00000	-40.06087	0.09881	2.32806	-1.23228	4.8299	-0.31997	0.00079	0.01859	0.00000	0	0.049064	-0.563449	-3.014622
166	Kyung Dong City Gas	Korea	0.22189	0.00000	0.10750	181.69539	0.0000	17.99796	1.75883	16.47938	1.57891	11.78023	-1.50559	5.2023	0.09070	0.00869	0.06484	0.00000	0	0.275003	0.111358	-1.290973
167	Kyungbang	Korea	0.30154	0.22270	0.30030	512.57866	0.0000	131.00863	-0.30909	16.02925	4.54545	15.18814	-1.19884	6.2395	0.03127	0.00887	0.02963	0.04960	1	0.322660	0.002866	-1.131156
168	Kyungin Synthetics	Korea	0.17139	0.34490	0.31840	55.08827	0.0000	13.97653	-0.73832	3.39704	0.04817	2.58199	-1.76380	4.0089	0.06167	0.00087	0.04687	0.11896	1	0.426586	0.054954	-0.851942
169	Kyungnam Energy Company	Korea	0.22838	0.01340	0.40480	102.64612	0.0000	16.01295	10.63138	13.34504	0.09328	9.22170	-1.47676	4.6313	0.13001	0.00091	0.08984	0.00018	0	0.336571	0.138070	-1.088946
170	Leadcorp	Korea	0.36962	0.00396	0.41000	65.49012	0.0000	15.29790	-9.40237	-2.39763	0.04190	1.95652	-0.99528	4.1819	-0.03661	0.00064	0.02988	0.00002	0	0.583407	-0.139157	-0.538870
171	LG Chem	Korea	0.63197	0.00000	0.30000	3,495.92648	1.0000	9.66771	106.56601	460.99842	54.47115	213.18498	-0.45892	8.1594	0.13187	0.01558	0.06098	0.00000	0	0.005835	0.151230	-5.143897
172	LG Corp.	Korea	0.59036	0.10160	0.47340	5,959.75494	0.0000	17.23751	203.74229	694.26957	106.35178	274.14941	-0.52702	8.6928	0.11649	0.01784	0.04600	0.01032	0	0.622371	0.134476	-0.474220
173	LG International Corp.	Korea	0.77475	0.00000	0.06080	2,855.68854	1.0000	20.60506	141.22925	158.95099	5.62372	13.52174	-0.25522	7.9571	0.05566	0.00197	0.00474	0.00000	0	0.414179	0.070921	-0.881457
174	LG Micron	Korea	0.56803	0.00141	0.47300	356.44585	1.0000	18.62242	-31.58972	27.38340	2.74862	39.47194	-0.56558	5.8762	0.07682	0.00771	0.11074	0.00000	0	4.014223	-0.150279	1.389844
175	LG Telecom	Korea	0.88036	0.00000	0.52090	1,642.51398	0.0000	7.38437	-237.81451	-163.56386	8.69114	290.28707	-0.12742	7.4040	-0.09958	0.00529	0.17673	0.00000	0	1.109337	-2.203221	0.103763
176	Lotte Chilsung Beverage Company	Korea	0.18364	0.12569	0.41250	610.51779	0.0000	6.25277	45.95257	91.72806	0.44901	36.64585	-1.69478	6.4143	0.15025	0.00074	0.06002	0.01580	0	0.542132	0.190573	-0.612245
177	Lotte Confectionary Company Ltd	Korea	0.27562	0.00010	0.33420	633.41423	0.0000	-1.49840	40.54466	62.79842	0.90040	49.69565	-1.28871	6.4511	0.09914	0.00142	0.07846	0.00000	0	0.357446	0.106429	-1.028770
178	Lotte Midopa	Korea	0.95554	0.00000	0.79010	546.93425	1.0000	-0.66169	18.03248	37.61925	3.36147	6.82877	-0.04548	6.3043	0.06878	0.00615	0.01249	0.00000	0	0.801039	-1.248687	-0.221846
179	Lotte Samkang Company Limited	Korea	0.23851	0.00000	0.44890	141.85375	0.0000	3.98914	23.80158	27.51779	0.16443	9.64269	-1.43335	4.9548	0.19399	0.00116	0.06798	0.00000	0	0.378121	0.212963	-0.972542
180	Manho Rope & Wire Company	Korea	0.23176	0.10560	0.16160	192.46937	0.0000	78.97633	-1.34172	9.24225	0.01973	0.38027	-1.46206	5.2599	0.04802	0.00010	0.00198	0.01115	0	0.314798	0.028824	-1.155824
181	Michang Oil Industry Company	Korea	0.26492	0.24230	0.24380	41.36371	0.0000	-6.81293	-1.07712	3.84040	0.19352	1.43591	-1.32834	3.7224	0.09284	0.00468	0.03471	0.05871	1	0.209300	0.091265	-1.563988
182	Micronix Company	Korea	0.48275	0.34800	0.10790	98.69486	0.0000	35.38517	-6.03241	1.88538	3.29091	2.38182	-0.72826	4.5920	0.01910	0.03334	0.02413	0.12110	1	0.455544	-0.021411	-0.786263
183	Motonic Corp.	Korea	0.01510	0.40000	0.00600	74.12660	1.0000	24.43630	23.05235	6.85364	0.10216	8.06306	-4.19331	4.3058	0.09246	0.00138	0.10877	0.16000	1	0.166375	0.116724	-1.793513
184	Namyeung	Korea	0.18927	0.34330	0.32330	115.04521	0.0000	-0.55046	7.83058	8.02251	0.05919	1.35248	-1.66461	4.7453	0.06973	0.00051	0.01176	0.11785	1	0.159947	0.054506	-1.832915
185	Nexen	Korea	0.52208	0.19200	0.10700	319.05457	0.0000	14.01537	-7.99278	20.36318	0.14600	11.44128	-0.64994	5.7654	0.06382	0.00046	0.03586	0.03686	0	0.231870	-0.010982	-1.461579
186	Nong Shim Company Limited	Korea	0.32400	0.09950	0.45870	1,082.65222	0.0000	-8.48931	46.75836	118.43628	1.55697	10.23957	-1.12702	6.9872	0.10939	0.00144	0.00946	0.00990	0	0.368311	0.135808	-0.998827
187	Orientbio Inc	Korea	0.29794	0.28890	0.21340	121.94528	1.0000	17.26016	-2.67089	4.83601	0.35286	1.74440	-1.21086	4.8036	0.03966	0.00289	0.01430	0.08346	1	0.201891	0.036093	-1.600030
188	Orion Corp.	Korea	0.59498	0.31650	0.10060	598.02846	0.0000	40.97977	0.58261	46.87194	46.81581	30.98261	-0.51923	6.3936	0.07838	0.07828	0.05181	0.10017	1	0.417423	0.125286	-0.873655

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
189	Ottogi	Korea	0.36641	0.34040	0.14660	319.77943	0.0000	10.45096	-17.12785	16.95608	0.27684	4.83006	-1.00402	5.7676	0.05302	0.00087	0.01510	0.11587	1	0.349628	0.072128	-1.050885
190	Oyang	Korea	0.45766	0.06950	0.35190	116.60433	0.0000	19.64529	8.86597	6.17094	0.00236	5.97642	-0.78162	4.7588	0.05292	0.00002	0.05125	0.00483	0	0.407813	0.026740	-0.896946
191	Pacific Pharmaceutical Company L	Korea	0.27274	0.00390	0.69300	36.92083	1.0000	-0.16695	6.88262	4.78370	0.31103	1.34209	-1.29922	3.6088	0.12957	0.00842	0.03635	0.00002	0	0.458158	0.121974	-0.780541
192	Pang Rim Company	Korea	0.59370	0.37350	0.02530	309.53570	0.0000	-4.79720	-24.83193	35.36849	0.88427	0.47626	-0.52138	5.7351	0.11426	0.00286	0.00154	0.13950	1	0.467479	0.158412	-0.760401
193	Papercorea Income	Korea	1.44048	0.02900	0.78100	222.69960	0.0000	-20.24528	1.42925	51.32411	0.97628	10.73360	0.36498	5.4058	0.23046	0.00438	0.04820	0.00084	0	1.205943	-0.255822	0.187262
194	Poonglim Industrial Company	Korea	0.62808	0.23970	0.03350	672.03636	1.0000	-11.68550	106.38103	54.61107	57.46798	12.54545	-0.46508	6.5103	0.08126	0.08551	0.01867	0.05746	1	0.252783	0.024997	-1.375225
195	Poongsan Corp.	Korea	0.52600	0.13660	0.13930	1,394.65059	0.0000	6.89374	29.14387	146.04585	6.43399	59.35336	-0.64244	7.2404	0.10472	0.00461	0.04256	0.01866	0	0.506156	0.102306	-0.680909
196	Posco	Korea	0.42504	0.00000	0.33540	15,834.31700	0.0000	2.39897	743.48221	2209.24506	423.17391	980.29249	-0.85558	9.6699	0.13952	0.02673	0.06191	0.00000	0	0.566218	0.173819	-0.568777
197	Pum Yang Construction Company L	Korea	0.47510	0.13450	0.07380	144.02759	1.0000	10.48680	-9.20544	8.51464	0.20890	0.93498	-0.74422	4.9700	0.05912	0.00145	0.00649	0.01809	0	0.221463	0.042610	-1.507498
198	Radix	Korea	0.68015	0.00000	0.79960	137.06403	1.0000	-13.40324	-4.50198	-1.74150	3.24427	6.72332	-0.38544	4.9204	-0.01271	0.02367	0.04905	0.00000	0	0.406613	-0.200268	-0.899894
199	Raygen	Korea	0.22426	0.30240	0.03970	19.31131	1.0000	81.94486	0.69042	2.32405	1.12743	1.15232	-1.49495	2.9607	0.12035	0.05838	0.05967	0.09145	1	0.855748	-0.082331	-0.155779
200	Rifa Industrial Company Limited	Korea	0.24014	0.24970	0.22880	89.03866	0.0000	-7.15587	-12.76220	4.89966	0.01993	0.21797	-1.42655	4.4891	0.05503	0.00022	0.00245	0.06235	1	0.175041	0.029071	-1.742733
201	Rocket Electric Company Limited	Korea	0.91725	0.15010	0.02200	119.87905	1.0000	-7.83401	-11.31858	-22.74941	12.49486	5.33755	-0.08637	4.7865	-0.18977	0.10423	0.04452	0.02253	0	0.500464	-16.780542	-0.692220
202	S Net Systems Inc	Korea	0.11403	0.09280	0.07780	59.52414	1.0000	221.43956	-12.68380	9.62627	0.00293	0.50254	-2.17133	4.0864	0.16172	0.00005	0.00844	0.00861	0	0.576049	0.222679	-0.551563
203	Saehan Industries	Korea	0.80940	0.00000	0.08790	1,307.56126	0.0000	-26.20377	-257.72095	-434.71542	3.64585	16.91462	-0.21146	7.1759	-0.33246	0.00279	0.01294	0.00000	0	0.651884	-2.692750	-0.427889
204	Saehan Media Corp.	Korea	1.01478	0.00000	0.26000	487.80992	1.0000	-28.53990	-38.07790	-190.88371	3.21265	26.60699	0.01467	6.1899	-0.39131	0.00659	0.05454	0.00000	0	0.764772	43.917164	-0.268177
205	Sajo Industries Company	Korea	0.71700	0.29150	0.61320	222.74783	0.0000	18.53206	-38.81265	9.62767	0.00949	8.21186	-0.33269	5.4060	0.04322	0.00004	0.03687	0.08497	1	0.523295	-0.061066	-0.647610
206	Sam Hwa Paints Industrial	Korea	0.33311	0.00000	0.62160	116.63808	0.0000	7.90054	-8.61870	7.44614	0.40981	5.01949	-1.09929	4.7591	0.06384	0.00351	0.04303	0.00000	0	0.251602	0.049883	-1.379908
207	Sam WHA Electronics	Korea	0.47811	0.08080	0.38810	77.87510	1.0000	18.25419	-18.54308	7.81976	1.66166	7.46798	-0.73792	4.3551	0.10041	0.02134	0.09590	0.00653	0	0.952853	0.118342	-0.048295
208	Sam Whan Camus Company	Korea	0.41823	0.00000	0.49640	145.54941	1.0000	-2.36188	3.45375	7.43636	0.00079	1.13518	-0.87173	4.9805	0.05109	0.00001	0.00780	0.00000	0	0.287375	0.002997	-1.246966
209	Sam Whan Corp.	Korea	0.41706	0.09030	0.25550	687.35020	1.0000	-7.27215	94.95652	34.53755	0.00079	3.25138	-0.87452	6.5328	0.05025	0.00000	0.00473	0.00815	0	0.120889	0.015925	-2.112885
210	Sam Yang Company	Korea	0.48233	0.12370	0.01660	1,068.68545	0.0000	3.10171	48.15679	67.79096	12.56763	64.04422	-0.72914	6.9742	0.06343	0.01176	0.05993	0.01530	0	0.429618	0.066985	-0.844859
211	Sam Yang Heavy Machinery Comp	Korea	0.00542	0.00000	0.16990	25.77069	1.0000	-15.58730	-3.48345	-3.16147	0.05919	0.04484	-5.21818	3.2492	-0.12268	0.00230	0.00174	0.00000	0	0.057745	-0.232195	-2.851715
212	Sam Young Electronics Company L	Korea	0.24400	0.14590	0.38400	351.02530	1.0000	8.06535	-7.70830	39.56759	1.37391	17.80237	-1.41058	5.8609	0.11272	0.00391	0.05072	0.02129	0	0.413884	0.104404	-0.882169
213	Sam Yung Trading Company Limit	Korea	0.06367	0.21020	0.20660	71.31225	1.0000	-1.15393	0.63874	7.35257	0.26640	0.52806	-2.75403	4.2671	0.10310	0.00374	0.00740	0.04418	1	0.015903	0.082090	-4.141258
214	Sambu Construction Company Limi	Korea	0.49383	0.08130	0.05830	559.04269	1.0000	2.16984	8.36601	26.48854	0.67747	5.86087	-0.70557	6.3262	0.04738	0.00121	0.01048	0.00661	0	0.189705	-0.004802	-1.662284
215	Samchully Company Limited	Korea	0.20355	0.14540	0.19000	515.14466	0.0000	14.42342	14.55810	35.51621	0.00316	27.13518	-1.59182	6.2444	0.06894	0.00001	0.05267	0.02114	0	0.341091	0.085034	-1.075605
216	Samhwa Crown & Closure Compar	Korea	0.26445	0.00000	0.58790	103.67090	0.0000	6.67557	3.42266	11.88274	2.28506	3.94298	-1.33011	4.6412	0.11462	0.02204	0.03803	0.00000	0	0.402949	0.097226	-0.908945
217	Samick Musical Instrument Compar	Korea	1.09786	0.00000	0.75330	266.39526	1.0000	0.40222	-1.90988	13.01344	0.29723	3.28696	0.09336	5.5850	0.04885	0.00112	0.01234	0.00000	0	0.158424	1.508224	-1.842480
218	Samil Pharmaceutical Company Lir	Korea	0.24243	0.00000	0.94930	34.13450	1.0000	10.96845	5.00986	9.98131	0.03996	1.26489	-1.41706	3.5303	0.29241	0.00117	0.03706	0.00000	0	0.178218	0.338646	-1.724749
219	Sampyo Foods Company Limited	Korea	0.45071	0.17510	0.16600	181.27374	0.0000	7.01895	-22.24060	7.67452	0.20718	0.35785	-0.79692	5.2000	0.04234	0.00114	0.00197	0.03066	0	0.466710	-0.728867	-0.762047
220	Samsung Corp.	Korea	0.69445	0.14160	0.43000	10,333.15889	1.0000	-7.47103	758.47589	822.50356	102.29960	208.75020	-0.36464	9.2431	0.07960	0.00990	0.02020	0.02005	0	0.336976	0.014640	-1.087743
221	Samsung Electro Mechanical Comp	Korea	0.49765	0.00000	0.23690	3,141.39842	1.0000	13.10136	-193.15573	479.74783	25.88854	232.31858	-0.69785	8.0524	0.15272	0.00824	0.07395	0.00000	0	1.011633	0.213978	0.011566
222	Samsung Electronics Company Limi	Korea	0.55092	0.01940	0.18100	36,493.87984	1.0000	64.46153	-4733.51542	7238.57945	195.24427	2400.89091	-0.59617	10.5049	0.19835	0.00535	0.06579	0.00038	0	0.913623	0.322141	-0.090338
223	Samsung Fine Chemical	Korea	0.20574	0.00000	0.31300	596.27905	0.0000	-2.11749	11.01660	44.03083	9.19447	44.75020	-1.58115	6.3907	0.07384	0.01542	0.07505	0.00000	0	0.438803	0.057929	-0.823705
224	Samsung Heavy Industries Compar	Korea	0.53538	0.00000	0.37610	4,464.64980	1.0000	-13.76358	717.76917	-22.78419	28.93439	95.18261	-0.62477	8.4039	-0.00510	0.00648	0.02132	0.00000	0	0.471790	-0.137372	-0.751220
225	Samsung SDI Preferred	Korea	0.44367	0.00000	0.26580	4,477.12648	1.0000	10.15624	-27.31067	722.14545	51.78814	363.77708	-0.81268	8.4067	0.16130	0.01157	0.08125	0.00000	0	0.592281	0.235947	-0.523775
226	Samsung Techwin Limited	Korea	0.66076	0.00000	0.45500	1,706.26245	1.0000	-1.33491	193.09091	150.14941	160.27826	88.35099	-0.41437	7.4421	0.08800	0.09394	0.05178	0.00000	0	0.625455	0.036510	-0.469276
227	Samyang Genex Preferred	Korea	0.18465	0.00000	0.31580	209.38884	0.0000	-5.96968	30.66043	34.03983	0.11121	1.26190	-1.68931	5.3442	0.16257	0.00053	0.00603	0.00000	0	0.314542	0.151316	-1.156639
228	Seah Besteel Corp.	Korea	0.59440	0.00304	0.81440	958.32095	0.0000	-0.86469	23.95257	-7.04822	1.33360	63.52806	-0.52021	6.8652	-0.00735	0.00139	0.06629	0.00001	0	0.430589	-0.234613	-0.842602
229	Seah Steel Corporation	Korea	0.41062	0.14310	0.41870	885.51146	0.0000	24.80705	-22.12806	42.56759	3.40079	46.53834	-0.89009	6.7862	0.04807	0.00384	0.05256	0.02048	0	0.210815	0.017766	-1.556775
230	Sejong Industry	Korea	0.03682	0.50400	0.16800	112.57628	1.0000	16.81582	-13.48933	10.08617	0.00870	9.88696	-3.30184	4.7236	0.08959	0.00008	0.08782	0.25402	1	0.049392	0.116804	-3.007968
231	Seong An	Korea	0.76438	0.19770	0.35880	287.02372	0.0000	4.17641	-11.96680	12.50988	0.77312	9.93202	-0.26869	5.6596	0.04358	0.00269	0.03460	0.03909	0	0.571703	0.015982	-0.559135
232	Seoul Broadcasting System	Korea	0.12948	0.00000	0.65250	390.00158	1.0000	11.37488	39.17708	85.72095	0.81976	15.49565	-2.04419	5.9662	0.21980	0.00210	0.03973	0.00000	0	0.974812	0.211936	-0.025510
233	Seoul City Gas	Korea	0.39649	0.11480	0.47870	471.04054	0.0000	4.48383	-1.97797	29.06458	1.53806	21.33290	-0.92511	6.1549	0.06170	0.00327	0.04529	0.01318	0	0.443728	0.103352	-0.812544
234	Shin Won Corp.	Korea	0.73870	0.00000	0.50990	339.10830	1.0000	-0.28638	31.31542	14.23241	1.23162	6.49328	-0.30286	5.8263	0.04197	0.00363	0.01915	0.00000	0	0.604971	-0.261038	-0.502575
235	Shinsung English	Korea	0.47668	0.13000	0.31640	97.73597	1.0000	16.76115	-14.26957	-1.99447	2.27905	2.75494	-0.74091	4.5823	-0.02041	0.02332	0.02819	0.01690	0	0.469532	-0.090936	-0.756020
236	Shinsung Tongsang Company Ltd	Korea	4.54243	0.21840	0.44350	175.88265	1.0000	-55.45139	-4.86104	-193.47566	0.06099	1.42244	1.51346	5.1698	-1.10003	0.00035	0.00809	0.04770	1	1.450414	1.635774	0.371849
237	Shinyoung Wacoal	Korea	0.18406	0.10250	0.40400	154.75628	1.0000	12.78343	6.09223	11.26889	0.03579	1.77188	-1.69251	5.0419	0.07282	0.00023	0.01145	0.01051	0	0.074352	0.057606	-2.598949
238	SK Chemicals Company Limited	Korea	0.86931	0.12000	0.26730	2,672.23557	0.0000	42.35508	102.29407	132.66877	59.08300	85.73755	-0.14005	7.8907	0.04965	0.02211	0.03208	0.01440	0	0.420457	0.037100	-0.866413
239	SK Gas Company	Korea	0.61624	0.00000	0.58050	568.01581	0.0000	3.03348	-36.09565	50.42292	0.90751	13.93123	-0.48411	6.3421	0.08877	0.00160	0.02453	0.00000	0	0.544780	0.076093	-0.607373
240	SK Networks Company Limited Pre	Korea	0.60093	0.00000	0.70250	10,315.84585	1.0000	70.66735	-269.21818	283.43478	76.61186	16.34308	-0.50928	9.2414	0.02748	0.00743	0.00158	0.00000	0	0.176757	0.016905	-1.732978
241	SK Telecom Company	Korea	0.33351	0.00000	0.51380	8,492.96522	0.0000	74.52893	622.14229	1186.76047	2026.21028	1151.33597	-1.09808	9.0470	0.13973	0.23858	0.13556	0.00000	0	2.286095	0.163058	0.826845
242	SKC Company	Korea	0.77595	0.00320	0.48240	1,251.21581	1.0000	10.25473	-165.58182	71.76364	42.92490	34.63320	-0.25367	7.1319	0.05736	0.03431	0.02768	0.00001	0	0.637695	0.017206	-0.449895
243	Solborn Inc	Korea	0.14020	0.13850	0.08620	341.56311	1.0000	1287.75714	-12.28981	-16.04341	5.89201	3.22567	-1.96470	5.8335	-0.04697	0.01725	0.00944	0.01918	0	0.063579	-0.059656	-2.755470
244	Soosan Heavy Industrial Preferred	Korea	1.32318	0.29700	0.52440	68.31937	1.0000	-14.94039	4.63478	-0.46561	0.11542	1.79368	0.28004	4.2242	-0.00682	0.00169	0.02625	0.08821	1	0.782755	0.417393	-0.244935
245	Ssangyong Cement Industry Comp	Korea	1.10195	0.00000	0.64680	3,715.67115	1.0000	-23.57990	-54.28221	-330.93755	87.44427	180.44585	0.09708	8.2203	-0.08907	0.02353	0.04856	0.00000	0	0.880608	1.937151	-0.127143
246	Ssangyong Corporation	Korea	0.99388	0.00000	0.81360	748.92174	1.0000	-1.89492	3.96522	-8.39921	10.55810	13.08538	-0.00614	6.6186	-0.01122	0.01410	0.01747	0.00000	0	0.355512	-20.854453	-1.034197
247	Ssangyong Information & Commun	Korea	0.30349	0.00000	0.78220	149.97529	1.0000	10.72396	5.74905	40.68998	0.89716	3.34571	-1.19239	5.0105	0.27131	0.00598	0.02231	0.00000	0	0.160948	0.153298	-1.826676
248	Ssangyong Motors Company Limit	Korea	1.82819	0.00000	0.71960	1,654.72964	1.0000	-29.82258	88.09644	-635.17628	40.76838	155.27905	0.60333	7.4114	-0.38386	0.02464	0.09384	0.00000	0	1.181019	1.024242	0.166378
249	Sungchang Enterprise Company Lir	Korea	0.65444	0.18620	0.41340	234.63176	1.0000	-4.37344	3.66445	31.45040	0.00517	0.27755	-0.42397	5.4580	0.13404	0.00002	0.00118	0.03467	0	0.629102	0.174326	-0.463461
250	Taegu Department Store Company	Korea	0.60306	0.08450	0.09820	479.25365	1.0000	-4.17703	33.15450	58.07556	0.13934	5.28025	-0.50574	6.1722	0.12118	0.00029	0.01102	0.00714	0	0.554388	0.206235	-0.589890
251	Taekwang Industrial Company Lim	Korea	0.09014	0.00000	0.38260	1,539.26087	0.0000	52.89510	-98.94625	44.72411	0.01739	188.63715	-2.40640	7.3391	0.02906	0.00001	0.12255	0.00000	0	0.077295	0.021049	-2.560125
252	Taeyoung Engineering & Construct	Korea	0.21307	0.26190	0.11030	427.61028	1.0000	-6.30914	20.33518	55.85375	0.00474	3.53281	-1.54611	6.0582	0.13062	0.00001	0.00826	0.06859	1	0.364705	0.165308	-1.008665

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253	Taihan Electric Wire Company Lim	Korea	0.54775	0.00000	0.59260	1,028.58024	0.0000	-25.47802	11.22846	79.21265	1.50593	18.27194	-0.60193	6.9359	0.07701	0.00146	0.01776	0.00000	0	0.282613	0.062320	-1.263677
254	The Willbes Company	Korea	0.56566	0.00000	0.11470	302.36126	1.0000	11.42194	-12.25375	18.92885	10.24822	3.98972	-0.56977	5.7116	0.06260	0.03389	0.01320	0.00000	0	0.520826	0.026571	-0.652339
255	Timo Technology Company Limited	Korea	0.00602	0.00000	0.00080	12.66585	1.0000	231.62232	0.23237	0.68320	0.20850	0.39347	-5.11303	2.5389	0.05394	0.01646	0.03107	0.00000	0	0.490142	0.042017	-0.713060
256	Tong Yang Moolsan Company Ltd	Korea	0.28722	0.15230	0.41330	174.21512	1.0000	0.96124	-2.68445	11.27972	0.20469	5.41792	-1.24752	5.1603	0.06475	0.00117	0.03110	0.02320	0	0.294538	0.054322	-1.222349
257	Turbotek Company Limited	Korea	0.07020	0.19420	0.07810	133.51542	1.0000	104.86021	-10.26719	7.01581	7.20000	2.87589	-2.65640	4.8942	0.05255	0.05393	0.02154	0.03771	0	0.003291	0.043318	-5.716513
258	Union Steel Company Limited	Korea	0.39424	0.00000	0.74910	840.88379	0.0000	-9.41828	25.98893	55.73518	5.74545	30.38340	-0.93079	6.7345	0.06628	0.00683	0.03613	0.00000	0	0.351176	0.058288	-1.046468
259	Wiscom	Korea	0.08245	0.04810	0.14180	71.57438	0.0000	-1.13192	-2.04116	24.80979	0.00146	3.72229	-2.49558	4.2707	0.34663	0.00002	0.05201	0.00231	0	0.268711	0.340716	-1.314117
260	Woo Sung Feed	Korea	0.23233	0.22120	0.31450	151.58261	0.0000	0.95664	7.44032	12.80553	0.01818	5.61660	-1.45958	5.0211	0.08448	0.00012	0.03705	0.04893	1	0.089159	0.072257	-2.417329
261	Wooshin Systems	Korea	0.43331	0.00000	0.34090	28.30338	1.0000	42.41091	-8.77952	1.79613	0.43933	0.76344	-0.83630	3.3430	0.06346	0.01552	0.02697	0.00000	0	1.604988	0.094317	0.473116
262	Wooyoung Company Limited	Korea	0.69736	0.16080	0.07040	182.49257	1.0000	76.39681	-15.50204	16.80827	6.19456	11.87312	-0.36045	5.2067	0.09210	0.03394	0.06506	0.02586	0	0.576931	0.176326	-0.550033
263	Yeong Hwa Metal	Korea	0.68629	0.11610	0.07670	41.34064	1.0000	11.47260	-10.40021	1.29968	1.05111	2.95077	-0.37645	3.7218	0.03144	0.02543	0.07138	0.01348	0	0.809686	-0.043892	-0.211109
264	Youlchon Chemical Company Limite	Korea	0.26559	0.00000	0.59810	183.42657	0.0000	2.56485	18.41275	28.63250	0.59831	4.90932	-1.32580	5.2118	0.15610	0.00326	0.02676	0.00000	0	0.542419	0.163878	-0.611717
265	Youngbo Chemical	Korea	0.19944	0.01460	0.31000	52.28140	0.0000	0.65377	-2.96447	3.81077	0.00914	2.16872	-1.61224	3.9566	0.07289	0.00017	0.04148	0.00021	0	0.373024	0.081092	-0.986111
266	Youngone Corp.	Korea	0.15498	0.09150	0.24890	200.30722	1.0000	6.64775	-14.95839	29.41082	0.89627	1.72873	-1.86449	5.2999	0.14683	0.00447	0.00863	0.00837	0	0.438014	0.109559	-0.825505
267	Youngpoong	Korea	0.35745	0.06190	0.47590	797.07036	0.0000	25.70207	-1.97866	22.80632	3.12411	28.61976	-1.02875	6.6809	0.02861	0.00392	0.03591	0.00383	0	0.353375	0.016846	-1.040225
268	Yuhan Corp.	Korea	0.28108	0.00000	0.23590	439.63320	1.0000	5.66520	10.36285	50.30435	0.12490	5.96996	-1.26913	6.0859	0.11442	0.00028	0.01358	0.00000	0	0.359741	0.102301	-1.022370
269	Yuhwa Corp.	Korea	0.59027	0.30270	0.19930	51.15731	1.0000	-2.02351	-1.68933	3.09656	0.00237	0.54862	-0.52718	3.9349	0.06053	0.00005	0.01072	0.09163	1	0.619770	0.043419	-0.478407
270	Yungjin Pharmaceutical Company	Korea	0.59402	0.00090	0.57340	65.96364	1.0000	-45.15026	-1.66482	-24.51858	0.51067	2.29486	-0.52085	4.1891	-0.37170	0.00774	0.03479	0.00000	0	0.140927	-4.739709	-1.959514
271	Yuyang Information & Communicat	Korea	0.38613	0.20920	0.03230	76.91383	1.0000	13.65691	-4.26719	-1.85850	0.44269	1.20079	-0.95157	4.3427	-0.02416	0.00576	0.01561	0.04376	1	0.313140	-0.073968	-1.161106
272	A & M Realty Berhad	Malaysia	0.03727	0.49110	0.45360	173.70843	1.0000	37.45364	0.47289	2.88997	4.53890	0.94104	-3.28966	5.1574	0.01664	0.02613	0.00542	0.24118	1	0.348314	0.146392	-1.054651
273	Advance Synergy Berhad	Malaysia	0.51164	0.08950	0.19130	370.22161	1.0000	-81.73162	87.22776	6.16941	25.47184	4.55600	-0.67014	5.9141	0.01666	0.06880	0.01231	0.00801	0	0.402030	-0.187168	-0.911228
274	AIC Corporation Berhad	Malaysia	0.40355	0.24240	0.57880	119.05006	1.0000	6.15564	5.12205	14.73932	9.58121	6.29572	-0.90747	4.7795	0.12381	0.08048	0.05288	0.05876	1	0.956657	0.166058	-0.044310
275	Aluminium Company Of Malaysia	Malaysia	0.00373	0.00110	0.50230	76.39446	0.0000	1.89503	0.65736	4.03917	0.17131	3.52602	-5.59178	4.3359	0.05287	0.00224	0.04616	0.00000	0	3.143573	-0.062789	1.145360
276	Amalgamated Containers Berhad	Malaysia	0.75325	0.07380	0.45110	159.85070	0.0000	-6.43893	-6.56303	-11.81156	7.49226	3.32639	-0.28335	5.0742	-0.07389	0.04687	0.02081	0.00545	0	0.111731	0.020466	-2.191661
277	Amsteel Corporation Berhad	Malaysia	0.97588	0.47250	0.52060	3,492.71943	1.0000	-7.30206	96.71465	12.95843	62.79394	86.42996	-0.02441	8.1584	0.00371	0.01798	0.02475	0.22326	1	0.844277	-3.272418	-0.169275
278	Ancom Berhad	Malaysia	0.49207	0.25970	0.36590	241.65583	0.0000	136.29542	2.36490	4.55828	14.35138	9.07926	-0.70912	5.4875	0.01886	0.05939	0.03757	0.06744	1	0.020257	0.004358	-3.899249
279	Ann JOO Resources Berhad	Malaysia	0.25315	0.63790	0.08230	159.83305	1.0000	67.25745	3.21918	9.34411	0.02710	2.92918	-1.37376	5.0741	0.05846	0.00017	0.01833	0.40692	1	1.185948	0.056567	0.170543
280	Asas Dunia Berhad	Malaysia	0.00150	0.39810	0.53300	87.66328	1.0000	-2.20865	-1.43341	0.80525	0.52499	0.34973	-6.50172	4.4735	0.00919	0.00599	0.00399	0.15848	1	0.182753	0.006417	-1.699621
281	Asia Pacific Land Berhad	Malaysia	0.37831	0.32180	0.25850	423.50158	1.0000	-1.58629	1.75577	9.02043	1.40999	1.49551	-0.97205	6.0486	0.02130	0.00333	0.00353	0.10356	1	0.018118	0.149336	-4.010854
282	Autoair Holdings Berhad	Malaysia	0.12020	0.35270	0.37190	14.92610	1.0000	9.30640	-0.82396	1.29713	0.00289	0.85660	-2.11857	2.7031	0.08690	0.00019	0.05739	0.12440	1	0.910215	0.085250	-0.094074
283	Berjaya Land 'A' Berhad	Malaysia	0.37439	0.00410	0.29460	1,805.25382	1.0000	5.16214	-9.38838	124.61636	401.54524	12.75083	-0.98245	7.4985	0.06903	0.22243	0.00706	0.00002	0	0.457768	0.017244	-0.781393
284	Bolton Berhad	Malaysia	0.27071	0.10990	0.43710	266.09377	1.0000	-7.34213	-7.67781	-5.64178	16.66640	1.20157	-1.30671	5.5838	-0.02120	0.06263	0.00452	0.01208	0	4.729785	0.066346	1.553880
285	Brem Holdings Berhad	Malaysia	0.17291	0.19530	0.42890	120.29235	1.0000	13.64109	-3.89227	7.39236	4.03274	2.02403	-1.75499	4.7899	0.06145	0.03352	0.01683	0.03814	0	0.545705	0.046210	-0.605677
286	British American Tobacco (M) Berh	Malaysia	0.67132	0.00000	0.67190	499.46183	0.0000	107.43554	29.90468	199.09474	137.62118	18.32165	-0.39851	6.2135	0.39862	0.27554	0.03668	0.00000	0	5.933158	1.377859	1.780557
287	Cahya Mata Sarawak Berhad	Malaysia	0.88037	0.17860	0.55590	2,302.88908	1.0000	3.54144	2.27734	52.36813	68.75217	17.10877	-0.12742	7.7419	0.02274	0.02985	0.00743	0.03190	0	0.655445	0.082060	-0.422441
288	Cement Industries Of Malaysia Be	Malaysia	0.41002	0.00460	0.73840	332.08123	1.0000	74.99886	18.31665	9.96726	11.30278	13.71407	-0.89155	5.8054	0.03001	0.03404	0.04130	0.00002	0	0.425688	0.005734	-0.854049
289	Chase Perdana Berhad	Malaysia	3.20161	0.24210	0.67870	127.68760	1.0000	-23.36095	-5.12100	-69.48821	0.68157	0.61210	1.16365	4.8496	-0.54420	0.00534	0.00479	0.05861	1	0.831965	1.137808	-0.183964
290	Chee Wah Corp. Berhad	Malaysia	0.38833	0.28790	0.41620	18.71468	0.0000	12.51816	-0.63580	1.93436	0.74794	0.74368	-0.94589	2.9293	0.10336	0.03997	0.03974	0.08289	1	0.613384	0.114851	-0.488764
291	CI Holdings Berhad	Malaysia	0.05564	0.23740	0.75500	91.73533	1.0000	2.59167	-12.86553	-1.12792	5.64301	2.03978	-2.88879	4.5189	-0.01230	0.06151	0.02224	0.05636	1	0.633882	-0.030492	-0.455893
292	CME Group Berhad	Malaysia	0.18572	0.00000	0.43720	15.95483	1.0000	13.12436	-3.32339	-0.62315	0.01421	0.18868	-1.68350	2.7698	-0.03906	0.00089	0.01183	0.00000	0	0.685285	-0.088909	-0.377921
293	CN Asia Corporation Berhad	Malaysia	0.30618	0.32220	0.41630	19.39521	0.0000	-5.71380	1.25622	-0.52250	0.29436	0.53555	-1.18357	2.9650	-0.02694	0.01518	0.02761	0.10381	1	0.496235	-0.083438	-0.700706
294	Computer Forms Malaysia Berhad	Malaysia	0.51999	0.00000	0.61200	28.99461	0.0000	0.22074	-1.15890	0.95756	0.48240	0.89694	-0.65395	3.3671	0.03303	0.01664	0.03093	0.00000	0	1.145647	-0.021711	0.135969
295	Country Heights Holdings Berhad	Malaysia	0.46529	0.08340	0.62080	562.49248	1.0000	41.61048	-44.13453	20.02531	1.68525	8.06176	-0.76510	6.3324	0.03560	0.00300	0.01433	0.00696	0	0.037953	-0.683762	-3.271396
296	Dijaya Corporation Berhad	Malaysia	0.33450	0.29000	0.55660	345.05030	1.0000	-4.37213	23.18581	4.54179	7.77571	1.84972	-1.09513	5.8437	0.01316	0.02253	0.00536	0.08410	1	0.088629	0.096445	-2.423292
297	E & O Property Development Berh	Malaysia	0.48520	0.45100	0.50430	174.55117	1.0000	-4.75629	-0.68868	31.88100	7.87229	2.92444	-0.72319	5.1622	0.18265	0.04510	0.01675	0.20340	1	0.803354	0.265423	-0.218960
298	Ekovest Berhad	Malaysia	0.14366	0.10500	0.53380	71.29955	1.0000	15.69901	-1.27587	7.66833	1.32342	1.77626	-1.94029	4.2669	0.10755	0.01856	0.02491	0.01103	0	0.854835	0.153836	-0.156846
299	Eng Teknologi Holdings Berhad	Malaysia	0.14493	0.15720	0.39340	59.24227	1.0000	23.79197	-1.75446	10.95883	6.86387	3.50207	-1.93149	4.0816	0.18498	0.11586	0.05911	0.02471	0	0.532790	0.225395	-0.629628
300	FA Peninsular Berhad	Malaysia	0.53596	0.00000	0.51270	25.35372	0.0000	16.47815	0.19714	1.04629	7.61467	1.23694	-0.62369	3.2329	0.04127	0.30034	0.04879	0.00000	0	1.317992	-0.048424	0.276109
301	Faber Group Berhad	Malaysia	0.87988	0.00000	0.50220	536.11934	1.0000	1.83529	5.68117	4.11140	0.06658	8.72123	-0.12797	6.2844	0.00767	0.00012	0.01627	0.00000	0	0.752570	-0.939310	-0.284261
302	FACB Industries Inc Berhad	Malaysia	0.21870	0.11680	0.55730	83.95422	0.0000	9.81752	-0.04364	8.15748	0.06432	2.15333	-1.52008	4.4303	0.09717	0.00077	0.02565	0.01364	0	0.293254	0.105432	-1.226717
303	Farlim Group (Malaysia) Berhad	Malaysia	0.49980	0.01920	0.34190	150.65929	1.0000	-2.02812	-1.21880	-3.00865	9.49437	2.72746	-0.69355	5.0150	-0.01997	0.06302	0.01810	0.00037	0	0.151274	-0.006443	-1.888662
304	FCW Holdings Berhad	Malaysia	0.14363	0.10020	0.23280	64.69688	0.0000	-20.77044	-5.46090	-8.47412	18.16933	1.30950	-1.94051	4.1697	-0.13098	0.28084	0.02024	0.01004	0	1.232538	-0.263702	0.209075
305	Fututech Berhad	Malaysia	0.16879	0.17100	0.30780	20.87767	0.0000	8.49813	-0.69920	1.12815	3.69470	0.72657	-1.77908	3.0387	0.05404	0.17697	0.03480	0.02924	0	0.344761	0.035336	-1.064905
306	Gamuda Berhad	Malaysia	0.10489	0.10920	0.34720	369.11432	1.0000	20.79236	11.01557	34.92914	1.37135	2.73955	-2.25484	5.9111	0.09463	0.00372	0.00742	0.01192	0	0.559204	0.136876	-0.581241
307	Glenealy Plantations Berhad	Malaysia	0.61490	0.51200	0.36210	396.08510	0.0000	-1.27845	-1.53766	11.08628	27.43794	7.78148	-0.48629	5.9816	0.02799	0.06927	0.01965	0.26214	1	0.652509	0.108528	-0.426931
308	Globetronics Technology Berhad	Malaysia	0.03946	0.01800	0.61360	50.88078	1.0000	30.33421	-0.14631	9.13411	0.03421	1.25367	-3.23259	3.9295	0.17952	0.00067	0.02464	0.00032	0	1.395558	0.293117	0.333294
309	Goh Ban Huat Berhad	Malaysia	0.47611	0.10060	0.50880	52.31195	1.0000	4.03400	-4.39707	-0.53544	0.06990	1.44115	-0.74211	3.9572	-0.01024	0.00134	0.02755	0.01012	0	0.903847	-0.090143	-0.101095
310	Golden Pharos Berhad	Malaysia	0.36724	0.00000	0.63180	44.70847	1.0000	-11.62723	-4.07285	-4.61811	0.07237	1.94761	-1.00174	3.8002	-0.10329	0.00162	0.04356	0.00000	0	0.755888	-0.284383	-0.279862
311	Gopeng Berhad	Malaysia	0.56095	0.32360	0.66330	130.23099	1.0000	-0.25966	1.16762	2.87365	0.08816	0.35052	-0.57812	4.8693	0.02207	0.00068	0.00269	0.10472	1	0.742409	0.003729	-0.297855
312	Halim Mazmin Berhad	Malaysia	0.87745	0.53350	0.28060	152.08102	1.0000	84.74153	-57.39281	9.88069	0.05737	4.48601	-0.13073	5.0244	0.06497	0.00038	0.02950	0.28462	1	0.589405	0.174115	-0.528642
313	Hexza Corporation Berhad	Malaysia	0.10711	0.02180	0.30520	41.01369	0.0000	5.43599	2.61610	4.54325	0.25106	1.23476	-2.23390	3.7139	0.11077	0.00612	0.03011	0.00048	0	0.557484	0.094570	-0.584322
314	Highlands & Lowlands Berhad	Malaysia	0.02336	0.00010	0.78840	693.70504	0.0000	2.64455	19.50006	54.25758	0.03921	7.82229	-3.75665	6.5420	0.07821	0.00006	0.01128	0.00000	0	0.017653	0.038701	-4.036823
315	Hing Yiap Knitting Industries Berha	Malaysia	0.31945	0.07040	0.52540	24.23423	0.0000	10.49593	-1.43821	2.78470	0.94839	0.64519	-1.14115	3.1878	0.11491	0.03913	0.02662	0.00496	0	0.591156	0.123087	-0.525675
316	Hirotako Holdings Berhad	Malaysia	0.14847	0.06470	0.54930	43.84243	1.0000	105.09851	6.42256	3.72838	2.83655	1.72919	-1.90735	3.7806	0.08504	0.06470	0.03944	0.00419	0	0.057263	0.117707	-2.860094

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
317	Ho Wah Genting Berhad	Malaysia	0.86059	0.00150	0.25960	61.28804	0.0000	123.72269	1.72235	20.98609	3.52286	1.71972	-0.15013	4.1156	0.34242	0.05748	0.02806	0.00000	0	1.113047	2.704647	0.107102
318	Hong Leong Industries Berhad	Malaysia	0.66905	0.01870	0.64490	1,207.88546	1.0000	6.86660	16.23534	173.95468	118.85853	65.24268	-0.40190	7.0966	0.14402	0.09840	0.05401	0.00035	0	0.962599	0.179724	-0.038118
319	Hume Industries Malaysia Berhad	Malaysia	0.75834	0.63890	0.28580	1,177.82799	1.0000	-8.50477	32.73437	85.32731	143.79405	45.20121	-0.27663	7.0714	0.07244	0.12208	0.03838	0.40819	1	1.072348	0.113036	0.069850
320	Hunza Consolidated Berhad	Malaysia	0.33031	0.00870	0.64890	39.67984	0.0000	21.32684	0.38607	1.53232	0.41697	1.46570	-1.10772	3.6808	0.03862	0.01051	0.03694	0.00008	0	0.831119	0.024821	-0.184983
321	IJM Corporation Berhad	Malaysia	0.30942	0.11020	0.47090	595.25976	1.0000	11.95575	-5.84178	23.35633	0.81499	6.11204	-1.17305	6.3890	0.03924	0.00137	0.01027	0.01214	0	0.589603	0.064342	-0.528305
322	Industronics Berhad	Malaysia	0.13009	0.21030	0.56300	30.44941	1.0000	9.63625	-1.98551	3.47233	0.30237	0.50605	-2.03954	3.4161	0.11404	0.00993	0.01662	0.04423	1	0.431840	0.081155	-0.839700
323	Insas Berhad	Malaysia	0.22470	0.07910	0.31900	303.68897	1.0000	-8.50670	33.62412	11.80919	1.05055	3.76718	-1.49298	5.7160	0.03889	0.00346	0.01240	0.00626	0	0.052827	0.011396	-2.940729
324	Intergrated Logistics Berhad	Malaysia	0.49031	0.08560	0.34170	111.25546	1.0000	-1.91027	-0.05103	4.58471	0.07870	3.76040	-0.71272	4.7118	0.04121	0.00071	0.03380	0.00733	0	0.399290	0.011788	-0.918067
325	Ioi Corporation Berhad	Malaysia	0.29996	0.01130	0.44500	1,143.46754	0.0000	6.75719	54.60377	134.59412	13.56949	13.78581	-1.20410	7.0418	0.11771	0.01187	0.01206	0.00013	0	0.510651	0.137484	-0.672069
326	Ireka Corp. Berhad	Malaysia	0.64553	0.11010	0.63140	93.12716	1.0000	10.76508	-9.73638	2.43526	3.65859	0.89577	-0.43768	4.5340	0.02615	0.03929	0.00962	0.01212	0	0.293797	0.023671	-1.224866
327	Jaya Tiasa Holdings Berhad	Malaysia	0.09340	0.00440	0.37080	344.12363	1.0000	10.96375	4.32300	38.02247	84.42751	17.29120	-2.37087	5.8410	0.11049	0.24534	0.05025	0.00002	0	1.372342	0.082704	0.316519
328	Johan Holdings Berhad	Malaysia	0.69772	0.11690	0.57220	315.19667	1.0000	-4.42057	-5.64300	3.61902	19.54406	3.98139	-0.35993	5.7532	0.01148	0.06201	0.01263	0.01367	0	0.635685	-0.272160	-0.453053
329	John Masters Industries Berhad	Malaysia	0.53170	0.09520	0.52310	62.67201	1.0000	-5.22474	5.96178	-1.08946	3.72917	0.51499	-0.63167	4.1379	-0.01738	0.05950	0.00822	0.00906	0	0.686553	-0.100212	-0.376071
330	Keck Seng Malaysia Berhad	Malaysia	0.15590	0.24030	0.36840	329.53599	0.0000	12.15281	1.30841	7.74202	0.83920	4.96311	-1.85851	5.7977	0.02349	0.00255	0.01506	0.05774	1	0.134412	0.019219	-2.006849
331	KFC Holdings (Malaysia) Berhad	Malaysia	0.41927	0.00060	0.68590	225.14683	1.0000	3.57452	17.68350	26.46314	23.02844	13.95669	-0.86925	5.4168	0.11754	0.10228	0.06199	0.00000	0	1.064824	0.150912	0.062809
332	Kim Hin Industries Berhad	Malaysia	0.01671	0.01060	0.59790	101.43077	1.0000	3.32819	6.51967	1.52972	2.73602	6.95493	-4.09198	4.6194	0.01508	0.02697	0.06857	0.00011	0	0.046025	0.023750	-3.078571
333	Konsortium Logistik Berhad	Malaysia	0.35139	0.00880	0.49060	194.10611	1.0000	2.21230	3.79785	14.06406	5.26889	8.62886	-1.04585	5.2684	0.07246	0.02714	0.04445	0.00008	0	0.677071	0.074810	-0.389980
334	Kretam Holdings Berhad	Malaysia	0.94143	0.16250	0.53320	139.36563	0.0000	-10.77354	-4.68574	1.35183	1.33709	3.39996	-0.06036	4.9371	0.00970	0.00959	0.02440	0.02641	0	0.874876	-0.900202	-0.133673
335	Kuala Lumpur Kepong Berhad	Malaysia	0.02793	0.00100	0.70050	987.22395	1.0000	-1.32666	-7.86053	55.98868	9.17289	23.75974	-3.57807	6.8949	0.05671	0.00929	0.02407	0.00000	0	0.492950	0.062099	-0.707348
336	KUB Malaysia Berhad	Malaysia	0.18356	0.00170	0.65790	297.15002	1.0000	6.39151	-41.43798	-7.98834	0.46710	7.05861	-1.69522	5.6942	-0.02688	0.00157	0.02375	0.00000	0	0.353312	-0.069382	-1.040405
337	Kulim Malaysia Berhad	Malaysia	0.30053	0.00460	0.74820	944.29344	0.0000	-5.17752	6.86282	17.34929	0.82394	14.41564	-1.20220	6.8504	0.01837	0.00087	0.01527	0.00002	0	0.087947	-0.026001	-2.431023
338	Kumpulan Fima Berhad	Malaysia	0.78713	0.00040	0.74050	180.09980	1.0000	7.60499	7.33730	-2.42708	4.70495	5.38363	-0.23936	5.1935	-0.01348	0.02612	0.02989	0.00000	0	1.156184	-0.339290	0.145125
339	Kumpulan Jetson Berhad	Malaysia	0.49898	0.11070	0.41360	43.46719	1.0000	21.76745	-5.50252	1.75801	0.01854	1.30416	-0.69520	3.7720	0.04044	0.00043	0.03000	0.01225	0	0.261228	0.033360	-1.342363
340	Kym Holdings Berhad	Malaysia	0.82332	0.03960	0.62360	78.79632	0.0000	1.98642	1.17079	0.08579	1.40395	2.31026	-0.19441	4.3669	0.00109	0.01782	0.02932	0.00157	0	1.034411	-0.307301	0.033833
341	Lafarge Malayan Cement Berhad	Malaysia	0.24569	0.00030	0.75860	1,237.23824	1.0000	-3.68279	52.19945	52.37392	270.85451	45.73136	-1.40368	7.1206	0.04233	0.21892	0.03696	0.00000	0	0.762296	0.026200	-0.271421
342	Latexx Partners Berhad	Malaysia	0.55179	0.00010	0.26120	43.10081	1.0000	-18.03341	-8.69392	-10.03624	0.32943	2.66194	-0.59459	3.7635	-0.23286	0.00764	0.06176	0.00000	0	1.398787	-0.636000	0.335606
343	Leader Universal Holdings Berhad	Malaysia	0.65675	0.00650	0.33590	404.69309	1.0000	-13.06823	-3.06707	20.23189	1.95472	13.61407	-0.42045	6.0031	0.04999	0.00483	0.03364	0.00004	0	0.279442	0.000546	-1.274961
344	Leong Hup Holdings Berhad	Malaysia	0.60169	0.07300	0.55090	189.60500	0.0000	-2.89329	16.33824	15.41861	11.94590	6.43696	-0.50801	5.2449	0.08132	0.06300	0.03395	0.00533	0	0.732117	0.118237	-0.311815
345	Lion Corporation Berhad	Malaysia	1.01719	0.00000	0.82070	937.91351	0.0000	21.30080	-54.85667	-12.83343	5.83538	7.06778	0.01704	6.8437	-0.01368	0.00622	0.00754	0.00000	0	0.383645	6.430775	-0.958037
346	Lityan Holdings Berhad	Malaysia	0.23762	0.08410	0.36080	86.55014	1.0000	1.37533	-9.28780	-7.74913	12.39382	1.50393	-1.43709	4.4607	-0.08953	0.14320	0.01738	0.00707	0	0.648685	-0.147485	-0.432808
347	Magnum Corporation Berhad	Malaysia	0.13177	0.00060	0.35430	592.14637	1.0000	-9.68106	90.74957	75.92683	0.59999	4.30759	-2.02673	6.3838	0.12822	0.00101	0.00727	0.00000	0	0.934687	0.078283	-0.067543
348	Mah Sing Group Berhad	Malaysia	0.61203	0.43210	0.47840	72.72502	1.0000	35.94420	-15.04695	0.80631	0.18947	2.08340	-0.49098	4.2867	0.01109	0.00261	0.02865	0.18671	1	6.043062	0.162480	1.798911
349	Malayan United Industries Berhad	Malaysia	0.37247	0.00100	0.56960	1,468.00738	1.0000	-3.26210	-57.51966	52.76181	269.22873	8.82464	-0.98759	7.2917	0.03594	0.18340	0.00601	0.00000	0	0.050687	1.006174	-2.982080
350	Malaysia Aica Berhad	Malaysia	0.05374	0.00000	0.79170	27.07447	1.0000	4.42744	0.79657	1.04420	0.24368	0.36394	-2.92368	3.2986	0.03857	0.00900	0.01344	0.00000	0	1.927944	0.027595	0.656454
351	Malaysian Mosaics Berhad	Malaysia	0.49234	0.00100	0.81470	612.19877	1.0000	3.89710	4.11561	30.01506	3.34980	8.05410	-0.70859	6.4171	0.04903	0.00547	0.01316	0.00000	0	0.648663	0.067165	-0.432842
352	Malaysian Pacific Industries Berha	Malaysia	0.40451	0.00000	0.85080	523.61303	1.0000	22.32182	63.94739	142.43271	7.27515	50.93659	-0.90507	6.2608	0.27202	0.01389	0.09728	0.00000	0	4.213708	0.392574	1.438343
353	Malaysian Resources Corp. Berhad	Malaysia	0.57311	0.00000	0.38440	921.33806	1.0000	-0.65127	-132.00504	26.20990	8.35899	3.63250	-0.55667	6.8258	0.02845	0.00907	0.00394	0.00000	0	0.915804	0.050528	-0.087953
354	Malpac Holdings Berhad	Malaysia	0.53463	0.07910	0.48460	65.69440	1.0000	-8.58836	14.37351	9.02178	0.29832	0.46494	-0.62619	4.1850	0.13733	0.00454	0.00708	0.00626	0	0.339171	0.051422	-1.081252
355	Mamee Double Decker Berhad	Malaysia	0.34081	0.55810	0.25220	48.92027	0.0000	3.33467	1.80840	3.18286	0.13026	2.96076	-1.07643	3.8902	0.06506	0.00266	0.06052	0.31148	1	0.369890	0.090484	-0.994550
356	Mechmar Corp. (Malaysia) Berhad	Malaysia	0.86858	0.14410	0.31620	269.07768	1.0000	15.82750	-12.05093	-1.46498	50.90209	1.13078	-0.14089	5.5950	-0.00544	0.18917	0.00420	0.02076	0	0.724177	-0.174697	-0.322719
357	Mega First Corp. Berhad	Malaysia	0.61832	0.00390	0.43330	142.48087	1.0000	-15.59485	-1.59556	11.88209	0.49001	5.97986	-0.48075	4.9592	0.08339	0.00344	0.04197	0.00002	0	0.339300	0.129995	-1.080872
358	Mentiga Corporation Berhad	Malaysia	1.09648	0.01250	0.62490	35.60331	1.0000	-13.60526	1.81866	-2.96207	0.91631	1.07920	0.09210	3.5724	-0.08320	0.02574	0.03031	0.00016	0	1.112258	3.364553	0.106392
359	Mesiniaga Berhad	Malaysia	0.05191	0.09840	0.59220	45.24978	1.0000	29.67843	-3.08760	5.60784	0.30973	0.98052	-2.95817	3.8122	0.12393	0.00684	0.02167	0.00968	0	0.696199	0.152281	-0.362120
360	Metacorp Berhad	Malaysia	0.16887	0.00120	0.84460	189.88093	1.0000	7.59649	9.02628	14.20706	68.19686	5.43903	-1.77865	5.2464	0.07482	0.35916	0.02864	0.00000	0	0.169044	0.074990	-1.777596
361	Metro Kajang Holdings Berhad	Malaysia	0.17904	0.01400	0.59440	97.63477	1.0000	14.35594	-0.89813	7.84776	0.13898	0.75160	-1.72017	4.5812	0.08038	0.00142	0.00770	0.00020	0	0.157907	0.061861	-1.845752
362	Minho (Malaysia) Berhad	Malaysia	0.39114	0.00570	0.50470	110.04647	1.0000	-17.11786	10.01647	5.76994	16.98061	5.94731	-0.93868	4.7009	0.05243	0.15430	0.05404	0.00003	0	0.218355	0.004244	-1.521633
363	Mintye Industries Berhad	Malaysia	0.02775	0.00000	0.85490	22.67044	1.0000	11.52163	1.08002	3.28296	0.46869	1.10107	-3.58441	3.1211	0.14481	0.02067	0.04857	0.00000	0	0.662410	0.126688	-0.411871
364	MTD Capital Berhad	Malaysia	0.54578	0.01930	0.64890	331.17459	1.0000	6.13183	4.53187	12.85851	57.59301	5.66356	-0.60554	5.8026	0.03883	0.17391	0.01710	0.00037	0	0.141953	0.100355	-1.952261
365	Muhibbah Engineering (Malaysia)	Malaysia	0.61639	0.24070	0.40100	217.70796	1.0000	0.59068	-4.47495	-5.73362	8.90122	4.65337	-0.48387	5.3832	-0.02634	0.04089	0.02137	0.05794	1	0.824198	-0.147929	-0.193345
366	Mui Properties Berhad	Malaysia	0.20587	0.00000	0.76250	310.79487	1.0000	-3.92155	-0.30789	8.39544	1.95972	1.85314	-1.58051	5.7391	0.02701	0.00631	0.00596	0.00000	0	0.173938	0.870828	-1.749057
367	MWE Holdings Berhad	Malaysia	0.35827	0.04720	0.47690	166.83587	1.0000	4.15584	2.34208	4.46916	6.20730	4.65074	-1.02646	5.1170	0.02679	0.03721	0.02788	0.00223	0	0.425631	-0.040939	-0.854183
368	Nam Fatt Corp. Berhad	Malaysia	0.50077	0.17380	0.54440	382.74648	1.0000	31.19659	8.02255	13.00986	76.82814	3.82391	-0.69161	5.9474	0.03399	0.20073	0.00999	0.03021	0	0.120813	0.011681	-2.113514
369	Nanyang Press Holdings Berhad	Malaysia	0.44066	0.00000	0.59520	87.14155	1.0000	-11.53775	11.85498	9.67573	0.23790	2.98980	-0.81948	4.4675	0.11103	0.00273	0.03431	0.00000	0	1.394423	0.143382	0.332481
370	Nestle (Malaysia) Berhad	Malaysia	0.51385	0.00000	0.89390	316.35218	0.0000	-3.12827	31.79177	71.07583	24.97210	20.50820	-0.66583	5.7569	0.22467	0.07894	0.06483	0.00000	0	4.072726	0.586219	1.404313
371	New Straits Times Press	Malaysia	0.62625	0.00000	0.66690	682.76812	1.0000	4.11015	-12.20518	18.93568	1.02319	13.21758	-0.46801	6.5262	0.02773	0.00150	0.01936	0.00000	0	1.227682	0.018447	0.205128
372	Pan Malaysia Corp. Berhad	Malaysia	0.09920	0.00050	0.69300	590.81270	0.0000	1.68782	6.33467	23.92843	16.72535	1.52235	-2.31064	6.3815	0.04050	0.02831	0.00258	0.00000	0	0.157539	0.014546	-1.848084
373	Pan Malaysian Industries Berhad	Malaysia	0.74189	0.00020	0.68870	471.95118	1.0000	1.39630	-18.27393	5.80588	15.90389	2.27498	-0.29856	6.1569	0.01230	0.03370	0.00482	0.00000	0	1.014360	-0.020911	0.014258
374	PDZ Holdings Berhad	Malaysia	1.00962	0.22270	0.56100	29.30061	1.0000	-18.04256	1.62951	0.04263	0.25579	2.88559	0.00958	3.3776	0.00146	0.00873	0.09848	0.04960	1	0.768295	9.320341	-0.263581
375	Perak Corporation Berhad	Malaysia	0.05045	0.00020	0.83160	168.98953	1.0000	6.92347	-5.12284	4.46495	9.64885	2.30182	-2.98671	5.1298	0.02642	0.05710	0.01362	0.00000	0	0.101355	0.010046	-2.289123
376	Pilecon Engineering Berhad	Malaysia	0.41196	0.00000	0.26230	235.75672	1.0000	7.21227	-35.40515	-14.88774	11.71040	3.42786	-0.88682	5.4628	-0.06315	0.04967	0.01454	0.00000	0	0.665894	-0.152005	-0.406624
377	PJ Development Holdings Berhad	Malaysia	0.37296	0.03730	0.33810	265.18968	1.0000	-3.82856	-6.01945	6.81915	1.59092	3.17169	-0.98628	5.5804	0.02571	0.00600	0.01196	0.00139	0	0.174201	0.013115	-1.747546
378	PK Resources Berhad	Malaysia	0.37919	0.03840	0.74080	290.98113	1.0000	-2.19520	-6.27467	5.87336	0.31315	3.81917	-0.96971	5.6733	0.02018	0.00108	0.01313	0.00147	0	0.469668	0.000911	-0.755730
379	Poly Glass Fibre (M) Berhad	Malaysia	0.36128	0.01250	0.61920	80.24522	0.0000	-3.73788	0.06935	-0.66052	0.02918	1.27577	-1.01811	4.3851	-0.00823	0.00036	0.01590	0.00016	0	0.995897	-0.065238	-0.004111
380	Press Metal Berhad	Malaysia	0.53521	0.23390	0.28440	88.46117	0.0000	16.09160	-7.89492	7.32045	1.06762	3.07707	-0.62510	4.4826	0.08275	0.01207	0.03478	0.05471	1	1.670840	0.100973	0.513326

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
381	Prolexus Berhad	Malaysia	0.44421	0.19980	0.41040	22.54062	1.0000	15.85358	0.42443	2.36610	0.23857	0.49205	-0.81146	3.1153	0.10497	0.01058	0.02183	0.03992	0	0.936081	0.177606	-0.066054
382	Public Packages Holdings Berhad	Malaysia	0.61962	0.06360	0.63040	69.03980	0.0000	2.36927	0.41815	4.37390	0.51210	1.84866	-0.47866	4.2347	0.06335	0.00742	0.02678	0.00404	0	0.563844	0.072976	-0.572977
383	Putera Capital Berhad	Malaysia	0.23286	0.00000	0.55740	40.00314	1.0000	-1.00098	1.92814	0.90605	0.06289	1.34078	-1.45731	3.6890	0.02265	0.00157	0.03352	0.00000	0	1.529746	0.009957	0.425101
384	Ranhill Power Berhad	Malaysia	0.85014	0.00050	0.86830	54.50040	1.0000	3.90739	-2.89467	0.62309	0.76372	1.36214	-0.16236	3.9982	0.01143	0.01401	0.02499	0.00000	0	0.223164	0.279620	-1.499848
385	RB Land Holdings Berhad	Malaysia	0.34393	0.00220	0.85760	163.24177	1.0000	-8.41591	-0.20835	-12.34750	0.29597	1.84361	-1.06732	5.0952	-0.07564	0.00181	0.01129	0.00000	0	1.287605	-0.188254	0.252784
386	Reliance Pacific Berhad	Malaysia	0.57027	0.00220	0.58340	158.37847	1.0000	3.17080	-5.49303	3.25181	1.46011	1.54470	-0.56165	5.0650	0.02053	0.00922	0.00975	0.00000	0	0.720663	0.034079	-0.327584
387	Sino Hua-An International Berhad	Malaysia	0.51044	0.00400	0.43430	352.11392	1.0000	-0.03310	-23.35417	-34.34151	9.42125	7.54042	-0.67248	5.8640	-0.09753	0.02676	0.02141	0.00002	0	0.810294	-0.335376	-0.210358
388	Southern Steel Berhad	Malaysia	0.74932	0.00000	0.81110	514.07088	0.0000	4.43650	2.87023	15.35431	17.76376	23.10449	-0.28859	6.2424	0.02987	0.03456	0.04494	0.00000	0	0.519492	-0.029179	-0.654904
389	Sunway City Berhad	Malaysia	0.52524	0.02800	0.68500	546.54343	1.0000	0.82123	7.81808	15.55799	2.43287	14.52564	-0.64390	6.3036	0.02847	0.00445	0.02658	0.00078	0	0.023328	0.064453	-3.758111
390	Sunway Holdings Income Berhad	Malaysia	0.63684	0.01430	0.55430	495.48003	1.0000	11.62429	4.13469	10.24568	11.80251	11.36751	-0.45124	6.2055	0.02068	0.02382	0.02294	0.00020	0	0.182903	-0.008188	-1.698802
391	Talam Corporation Berhad	Malaysia	0.46828	0.05680	0.55670	378.52211	1.0000	4.89447	-7.23935	14.30817	2.15531	1.74109	-0.75869	5.9363	0.03780	0.00569	0.00460	0.00323	0	0.056903	0.183763	-2.866415
392	Tamadam Bonded Warehouse Ber	Malaysia	0.45882	0.29070	0.40320	21.77240	1.0000	-27.40164	-1.47025	-0.41210	0.71183	0.90894	-0.77910	3.0806	-0.01893	0.03269	0.04175	0.08451	1	0.806606	-0.133808	-0.214919
393	TDM Berhad	Malaysia	0.64752	0.00000	0.79380	148.52659	0.0000	2.34386	-7.47887	-10.17437	1.83366	4.70811	-0.43460	5.0008	-0.06850	0.01235	0.03170	0.00000	0	0.532951	-0.395510	-0.629325
394	Tekala Corporation Berhad	Malaysia	0.00001	0.04640	0.35190	46.42969	1.0000	-4.54172	1.58490	-1.65987	0.16021	2.96243	-11.55013	3.8379	-0.03575	0.00345	0.06380	0.00215	0	1.531329	-0.040297	0.426136
395	Teo Guan Lee Corp. Berhad	Malaysia	1.00210	0.00410	0.77200	22.88643	1.0000	1.39515	1.00598	1.75745	0.33462	0.53995	0.00210	3.1305	0.07679	0.01462	0.02359	0.00002	0	1.021398	-10.348644	0.021172
396	TH Group Berhad	Malaysia	0.18486	0.32490	0.31450	122.97686	0.0000	7.49360	-1.51130	6.80624	0.13895	4.63916	-1.68813	4.8120	0.05535	0.00113	0.03772	0.10556	1	0.741827	0.039469	-0.298639
397	The Store Corp. Berhad	Malaysia	0.21490	0.06950	0.46930	123.77419	1.0000	51.93752	2.62637	5.86415	0.77963	3.54989	-1.53760	4.8185	0.04738	0.00630	0.02868	0.00483	0	0.194544	0.086014	-1.637095
398	Tradewinds (Malaysia) Berhad	Malaysia	0.34353	0.00000	0.81130	434.75593	0.0000	19.61993	-27.86339	14.91247	15.06063	7.49308	-1.06849	6.0748	0.03430	0.03464	0.01724	0.00000	0	0.199509	0.036595	-1.611895
399	Tradewinds Corp. Berhad	Malaysia	0.63617	0.00000	0.44920	1,259.77616	1.0000	1.38371	-63.83590	33.89701	3.61522	14.53800	-0.45229	7.1387	0.02691	0.00287	0.01154	0.00000	0	0.211872	0.004176	-1.551774
400	TSH Resources Berhad	Malaysia	0.29129	0.27820	0.43060	77.63523	1.0000	27.48836	-2.15129	6.43730	0.02132	2.24340	-1.23344	4.3520	0.08292	0.00027	0.02890	0.07740	1	0.444971	0.086512	-0.809746
401	UMW Holdings Berhad	Malaysia	0.14553	0.00000	0.36590	642.38005	1.0000	-1.71892	28.96206	46.77082	0.49026	22.63976	-1.92735	6.4652	0.07281	0.00076	0.03524	0.00000	0	0.616229	0.071911	-0.484137
402	Unico-Desa Plantations Berhad	Malaysia	0.17565	0.00360	0.65920	87.69559	0.0000	3.40344	-2.75517	6.73511	0.01895	1.10834	-1.73928	4.4739	0.07680	0.00022	0.01264	0.00001	0	0.470567	0.064966	-0.753817
403	Utusan Melayu (Malaysia) Berhad	Malaysia	0.59519	0.00000	0.78800	135.05041	1.0000	9.30892	-8.25860	4.02943	1.94314	7.39650	-0.51887	4.9056	0.02984	0.01439	0.05477	0.00000	0	0.617460	0.012786	-0.482142
404	Welli Multi Corp. Berhad	Malaysia	0.45573	0.05580	0.31790	12.12750	0.0000	-11.12718	-0.48499	-1.11420	0.73999	0.65315	-0.78585	2.4955	-0.09187	0.06102	0.05386	0.00311	0	1.316708	-0.258902	0.275134
405	White Horse Berhad	Malaysia	0.24698	0.37570	0.29750	114.64879	1.0000	16.47530	-12.00250	11.84303	0.17816	5.39889	-1.39846	4.7419	0.10330	0.00155	0.04709	0.14115	1	0.274391	0.124264	-1.293201
406	Wijaya Baru Global Berhad	Malaysia	0.67610	0.32080	0.25880	314.92957	1.0000	4.97257	0.03368	-2.04708	30.58652	3.85680	-0.39142	5.7523	-0.00650	0.09712	0.01225	0.10291	1	1.134947	-0.143144	0.126586
407	Yee Lee Corp. Berhad	Malaysia	0.42278	0.02580	0.74580	73.39817	0.0000	-0.09940	-2.43471	4.10996	0.67236	1.66893	-0.86090	4.2959	0.05600	0.00916	0.02274	0.00067	0	0.127908	0.047717	-2.056440
408	YTL Cement Berhad	Malaysia	0.05631	0.00270	0.85490	107.99988	1.0000	-30.77604	17.40457	7.22120	0.23106	4.76220	-2.87691	4.6821	0.06686	0.00214	0.04409	0.00001	0	1.090288	0.076674	0.086442
409	YTL Corp. Berhad	Malaysia	0.43905	0.02320	0.72680	2,659.90706	1.0000	6.87045	29.77246	248.55913	31.29223	41.01112	-0.82313	7.8860	0.09345	0.01176	0.01542	0.00054	0	0.120276	0.090845	-2.117965
410	YTL Power Berhad	Malaysia	0.31264	0.00170	0.50320	1,663.13150	0.0000	11.52961	29.25526	173.91214	0.00804	33.08744	-1.16269	7.4165	0.10457	0.00000	0.01989	0.00000	0	0.080420	0.096202	-2.520490
411	Aboitiz Equity Ventures Inc	Philippines	0.20760	0.05650	0.73520	410.65539	1.0000	32.81419	-19.38326	36.36558	14.64320	9.33617	-1.57215	6.0178	0.08855	0.03566	0.02273	0.00319	0	0.433789	0.084082	-0.835197
412	ABS-CBN Broadcasting	Philippines	0.32169	0.00070	0.95890	420.73545	1.0000	31.17547	-50.84488	68.68844	11.26309	20.79633	-1.13417	6.0420	0.16326	0.02677	0.04943	0.00000	0	2.020607	0.190796	0.703398
413	Alliance Global Group	Philippines	0.00000	0.00000	0.57890	82.75477	1.0000	47.11093	-0.08046	10.58091	8.45738	0.05990	-12.26796	4.4159	0.12786	0.10220	0.00072	0.00000	0	5.295086	0.125288	1.666779
414	Asian Terminals Inc	Philippines	0.43696	0.06850	0.87580	151.18342	1.0000	4.06838	11.40245	21.00039	1.65040	5.44447	-0.82790	5.0185	0.13891	0.01092	0.03601	0.00469	0	0.599528	0.141294	-0.511612
415	Bacnotan Consolidated Industries I	Philippines	0.60291	0.00540	0.92170	506.25947	1.0000	-4.67322	16.63408	10.46531	3.87468	28.19285	-0.50598	6.2270	0.02067	0.00765	0.05569	0.00003	0	0.351902	-0.045638	-1.044403
416	Benguet Corp.	Philippines	0.78477	0.00160	0.36640	70.83991	0.0000	0.68221	-0.70000	-4.12000	4.25999	0.68000	-0.24236	4.2604	-0.05816	0.06014	0.00960	0.00000	0	33.410907	-0.792079	3.508882
417	Benpres Holdings Corp.	Philippines	0.41539	0.00400	0.61410	1,046.81874	0.0000	17.35650	-36.27996	22.07997	271.77967	11.79999	-0.87854	6.9535	0.02109	0.25962	0.01127	0.00002	0	0.009798	-1.139494	-4.625610
418	Cosmos Bottling Corp.	Philippines	0.30979	0.00000	0.68210	156.49831	0.0000	19.81159	1.14328	21.89219	8.73661	13.69794	-1.17187	5.0530	0.13989	0.05583	0.08753	0.00000	0	0.890934	0.150925	-0.115485
419	First Philippine Holdings Corp	Philippines	0.71451	0.00750	0.88840	1,918.23769	0.0000	49.65906	-93.29989	100.15988	82.75990	2.72000	-0.33616	7.5592	0.05221	0.04314	0.00142	0.00006	0	0.555611	0.055260	-0.587687
420	Fortune Cement Corp.	Philippines	0.42398	0.00000	0.98920	195.75552	1.0000	-9.67789	-4.49097	-15.11936	21.36979	7.16633	-0.85806	5.2769	-0.07724	0.10917	0.03661	0.00000	0	0.456220	-0.178158	-0.784781
421	Globe Telecom Inc	Philippines	0.57502	0.00015	0.98120	1,269.30873	0.0000	74.05910	-183.14510	90.06377	5.27735	66.86626	-0.55334	7.1462	0.07095	0.00416	0.05268	0.00000	0	1.232391	0.079048	0.208957
422	House Of Investments Inc	Philippines	0.79265	0.01120	0.90300	213.59146	1.0000	10.14001	5.40807	11.49663	7.76331	4.75797	-0.23238	5.3641	0.05383	0.03635	0.02228	0.00013	0	0.233266	0.016466	-1.455577
423	International Container Terminal S	Philippines	0.84692	0.03730	0.93710	517.81574	1.0000	29.44865	-17.75632	40.93957	75.61837	43.00201	-0.16615	6.2496	0.07906	0.14603	0.08305	0.00139	0	0.627563	0.009974	-0.465912
424	Keppel Philippines Marine	Philippines	0.13627	0.02020	0.65190	64.28494	1.0000	-3.78635	3.04852	2.98874	0.71730	2.17564	-1.99309	4.1633	0.04649	0.01116	0.03384	0.00041	0	0.459775	0.032513	-0.777017
425	Liberty Telecoms Holdings	Philippines	0.23153	0.00230	0.56860	51.43602	0.0000	18.50146	2.78698	1.50218	0.08224	2.75768	-1.46304	3.9403	0.02920	0.00160	0.05361	0.00001	0	0.265647	0.005933	-1.325585
426	Metro Pacific Corp.	Philippines	0.32007	0.00081	0.97260	1,888.93638	1.0000	-5.42580	5.78609	-10.19375	0.39994	18.19926	-1.13921	7.5438	-0.00540	0.00021	0.00963	0.00000	0	0.134596	0.061886	-2.005479
427	Philippine National Construction C	Philippines	0.58580	0.00000	0.91910	137.55233	1.0000	-23.88878	-31.25970	-2.05840	71.48119	3.30494	-0.53477	4.9240	-0.01496	0.51967	0.02403	0.00000	0	0.583318	-0.272252	-0.539022
428	Picop Resources Inc	Philippines	0.32452	0.00003	0.90800	108.85443	0.0000	-1.05531	-0.65880	0.16050	0.51538	6.51641	-1.12541	4.6900	0.00147	0.00473	0.05986	0.00000	0	0.515717	-0.084779	-0.662197
429	Prime Orion Philippines Inc	Philippines	0.88184	0.00900	0.84050	230.32011	1.0000	-5.58116	-21.66917	-40.65363	2.78253	4.78875	-0.12575	5.4395	-0.17651	0.01208	0.02079	0.00008	0	0.831682	-0.486208	-0.184305
430	Pryce Corp.	Philippines	0.45900	0.00010	0.96460	125.58910	0.0000	16.04004	-5.72645	5.98137	1.48389	2.98124	-0.77870	4.8330	0.04763	0.01182	0.02374	0.00000	0	0.539934	0.013607	-0.616309
431	RFM Corp.	Philippines	0.59741	0.00160	0.80220	455.73945	0.0000	-4.27239	-42.79995	-20.03998	29.89996	20.45998	-0.51515	6.1219	-0.04397	0.06561	0.04489	0.00000	0	0.457157	-0.086591	-0.782729
432	Roxas Holdings Income	Philippines	0.28843	0.05450	0.83300	126.42091	0.0000	-6.83600	-0.02313	14.04625	3.63185	6.10707	-1.24329	4.8396	0.11111	0.02873	0.04831	0.00297	0	0.385898	0.079854	-0.952182
433	San Miguel Corp.	Philippines	0.42634	0.00018	0.59050	3,045.39633	0.0000	11.05196	-50.75994	181.71978	122.75985	58.41993	-0.85251	8.0214	0.05967	0.04031	0.01918	0.00000	0	0.819260	0.103835	-0.199354
434	South East Asia Cement	Philippines	0.43341	0.00000	0.96860	217.23974	1.0000	-3.75638	-6.03999	-3.12000	59.55993	9.79999	-0.83607	5.3810	-0.01436	0.27417	0.04511	0.00000	0	0.518872	-0.136541	-0.656099
435	Universal Robina Corp.	Philippines	0.22687	0.00150	0.69140	590.77844	0.0000	12.48793	-1.40692	31.32031	23.61469	28.09520	-1.48338	6.3814	0.05302	0.03997	0.04756	0.00000	0	0.265135	0.051707	-1.327515
436	Asia Hotel Public Company Limited	Thailand	0.78567	0.01100	0.82930	163.32759	1.0000	36.39351	1.04006	-7.65251	0.92623	5.00179	-0.24122	5.0958	-0.04685	0.00567	0.03062	0.00012	0	0.520336	-0.658628	-0.653281
437	Bangchak Petroleum Public Compa	Thailand	0.76116	0.00000	0.97330	667.05116	0.0000	0.07432	-88.71132	-7.21300	27.48269	26.35775	-0.27291	6.5029	-0.01081	0.04120	0.03951	0.00000	0	0.725693	-0.267780	-0.320628
438	Bangkok Expressway	Thailand	0.75144	0.00000	0.45420	1,230.10980	1.0000	-1.68865	15.92127	80.38597	1110.98506	32.05807	-0.28576	7.1149	0.06535	0.90316	0.02606	0.00000	0	0.819560	0.013128	-0.198987
439	Bangkok Land Public Company Lin	Thailand	0.78101	0.04280	0.90050	1,400.69217	1.0000	-11.22963	25.48504	258.88728	0.08049	5.90647	-0.24717	7.2447	0.18483	0.00006	0.00422	0.00183	0	0.847444	0.856881	-0.165531
440	Bangkok Rubber Company Limited	Thailand	0.62330	0.00000	0.40730	193.76835	1.0000	-2.53443	1.39633	8.56781	2.93575	8.64748	-0.47272	5.2667	0.04422	0.01515	0.04463	0.00000	0	0.561875	0.016804	-0.576477
441	BEC World	Thailand	0.00012	0.40890	0.24930	192.01423	1.0000	3.19261	30.16201	50.88300	0.02204	34.05894	-8.99418	5.2576	0.26500	0.00011	0.17738	0.16720	1	4.730462	0.209895	1.554023
442	Big C Supercentre	Thailand	0.17158	0.03040	0.87480	399.77005	1.0000	25.33930	-12.04084	24.34085	2.36936	16.61509	-1.76273	5.9909	0.06089	0.00593	0.04156	0.00092	0	1.044959	0.094732	0.043978
443	Delta Electronics Thai PCL	Thailand	0.04816	0.00000	0.64300	493.27641	1.0000	31.91387	24.72449	96.09394	0.24567	8.57424	-3.03331	6.2011	0.19481	0.00050	0.01738	0.00000	0	0.706269	0.298499	-0.347759
444	Eastern Water Resources Develop	Thailand	0.46588	0.00000	0.76150	134.11747	0.0000	0.87043	-16.90399	12.42793	0.03948	1.69271	-0.76383	4.8987	0.09266	0.00029	0.01262	0.00000	0	0.432720	0.080179	-0.837664

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
445	GFPT Company Limited	Thailand	0.45377	0.49680	0.15080	94.33050	0.0000	0.30929	-8.20094	6.49213	1.44765	4.72648	-0.79016	4.5468	0.06882	0.01535	0.05011	0.24681	1	0.477861	0.055330	-0.738435
446	GMM Grammy Public FB	Thailand	0.00719	0.00000	0.40610	96.74230	1.0000	0.29274	-5.81344	12.46318	0.18947	3.89366	-4.93528	4.5721	0.12883	0.00196	0.04025	0.00000	0	0.455645	0.096042	-0.786042
447	Hemaraj Land & Development Pub	Thailand	0.76013	0.01480	0.97560	154.19676	1.0000	-2.25324	-2.13183	-12.63063	0.02446	0.84244	-0.27426	5.0382	-0.08191	0.00016	0.00546	0.00022	0	0.349330	-0.751725	-1.051739
448	International Engineering Public Co	Thailand	0.33744	0.00470	0.47460	54.38629	1.0000	-10.77969	2.01122	-1.44585	26.96363	3.75770	-1.08638	3.9961	-0.02658	0.49578	0.06909	0.00002	0	0.266558	-0.122137	-1.322163
449	Italian-Thai Development Public Co	Thailand	0.85600	0.40620	0.15230	532.86571	1.0000	-19.17140	56.18728	-65.54719	0.56275	26.72621	-0.15549	6.2783	-0.12301	0.00106	0.05016	0.16500	1	0.601605	-1.899644	-0.508155
450	Jasmine International Public Comp	Thailand	0.98494	0.00670	0.73170	456.72990	0.0000	-20.81016	52.73180	18.46497	1.03285	22.82225	-0.01518	6.1241	0.04043	0.00226	0.04997	0.00004	0	0.768970	-2.924464	-0.262703
451	Loxley FB Public Company Limited	Thailand	1.28714	0.00000	0.74310	257.81067	1.0000	-9.47463	-13.35285	-32.58409	1.94407	5.60064	0.25242	5.5522	-0.12639	0.00754	0.02172	0.00000	0	0.877721	0.844327	-0.130427
452	Luckytex (Thailand) Public Compar	Thailand	0.59555	0.23610	0.59000	122.08795	0.0000	-8.11329	17.29331	12.87776	1.18318	15.56112	-0.51827	4.8047	0.10548	0.00969	0.12746	0.05574	1	0.638667	0.189880	-0.448372
453	Malee Sampran Public Company L	Thailand	0.60699	0.00000	0.99000	54.08827	0.0000	-2.83777	0.58518	-5.53833	0.04276	2.99306	-0.49925	3.9906	-0.10239	0.00079	0.05534	0.00000	0	0.564301	-0.914165	-0.572168
454	Matichon	Thailand	0.02847	0.24350	0.66640	39.63243	1.0000	11.07495	-0.37190	5.58494	2.51053	1.75396	-3.55894	3.6796	0.14092	0.06335	0.04426	0.05929	1	0.260460	0.104691	-1.345305
455	MBK	Thailand	0.19187	0.05080	0.35350	258.97366	0.0000	-5.79475	-4.08397	12.58795	0.26777	9.06557	-1.65094	5.5567	0.04861	0.00103	0.03501	0.00258	0	0.472618	0.053148	-0.749469
456	Modernform Group Company Limi	Thailand	0.15815	0.09890	0.31090	58.82004	1.0000	-3.70788	1.37360	3.98026	0.13656	3.16185	-1.84422	4.0745	0.06767	0.00232	0.05375	0.00978	0	0.309481	0.061341	-1.172859
457	Nation Multimedia	Thailand	0.59219	0.20160	0.38590	120.00243	1.0000	7.25425	-9.23337	4.94891	0.55136	2.04251	-0.52392	4.7875	0.04124	0.00459	0.01702	0.04064	1	0.741976	0.006067	-0.298439
458	Padaeng Industry	Thailand	0.43571	0.00000	0.38830	118.03931	0.0000	4.78962	-0.36072	8.78289	0.39159	8.41240	-0.83077	4.7710	0.07441	0.00332	0.07127	0.00000	0	0.780321	0.057969	-0.248050
459	President Rice	Thailand	0.46248	0.11820	0.49770	58.76812	0.0000	8.61554	1.15113	8.97685	0.22674	1.99820	-0.77115	4.0736	0.15275	0.00386	0.03400	0.01397	0	0.303707	0.222688	-1.191692
460	PTT Exploration And Production Pu	Thailand	0.55536	0.00000	0.82240	1,469.42750	0.0000	20.81041	216.45075	263.11669	2.38174	67.79064	-0.58814	7.2926	0.17906	0.00162	0.04613	0.00000	0	1.254356	0.260356	0.226623
461	Regional Containers	Thailand	0.70658	0.00860	0.70330	470.83952	1.0000	-1.12836	12.18623	11.31313	0.35065	16.26769	-0.34733	6.1545	0.02403	0.00074	0.03455	0.00007	0	0.632573	-0.085811	-0.457960
462	Samart Corporation	Thailand	1.22386	0.08770	0.67850	259.01561	1.0000	-9.78599	-3.35537	60.33324	6.63174	20.55271	0.20201	5.5569	0.23293	0.02560	0.07935	0.00769	0	0.923889	-0.967103	-0.079163
463	Serm SUK	Thailand	0.04192	0.00030	0.74650	171.61950	0.0000	7.03500	16.92929	16.27680	0.93232	14.20543	-3.17201	5.1453	0.09484	0.00543	0.08277	0.00000	0	0.443378	0.113927	-0.813334
464	Shin Corp.	Thailand	0.35832	0.13710	0.46720	873.19210	1.0000	48.16185	-0.21208	82.86301	126.72882	36.58365	-1.02632	6.7722	0.09490	0.14513	0.04190	0.01880	0	1.469576	0.132586	0.384974
465	Shin Satellite	Thailand	0.56345	0.00000	0.62600	272.75223	0.0000	6.17003	24.94235	27.70860	160.23502	22.54494	-0.57367	5.6086	0.10159	0.58747	0.08266	0.00000	0	1.528239	0.168723	0.424116
466	Siam Cement	Thailand	0.76799	0.00110	0.49560	5,542.25056	1.0000	-4.69530	122.24519	354.28744	56.70812	275.44932	-0.26398	8.6202	0.06392	0.01023	0.04970	0.00000	0	0.864871	0.024255	-0.145174
467	Surapon Foods Public Company Li	Thailand	0.52512	0.59770	0.05330	67.99891	0.0000	26.75529	-2.00419	11.90135	0.23981	2.41464	-0.64412	4.2195	0.17502	0.00353	0.03551	0.35725	1	0.459734	0.231968	-0.777107
468	Tanayong Company	Thailand	0.99920	0.05530	0.87260	1,928.23128	1.0000	15.85827	-47.83538	-24.19875	2.48268	5.40510	-0.00080	7.5644	-0.01255	0.00129	0.00280	0.00306	0	1.153011	1.693863	0.142376
469	Thai Carbon Black	Thailand	0.30394	0.00030	0.73690	101.37720	0.0000	2.89102	5.59343	12.15873	0.20445	4.51482	-1.19093	4.6188	0.11994	0.00202	0.04453	0.00000	0	0.565985	0.117582	-0.569187
470	Thai Central Chemical	Thailand	0.92711	0.00000	0.98420	196.86708	0.0000	-4.96637	23.06822	4.13324	2.03089	6.63900	-0.07569	5.2825	0.02100	0.01032	0.03372	0.00000	0	0.665226	-0.933384	-0.407628
471	Thai Plastic Chemical	Thailand	0.63086	0.03790	0.85370	409.22516	0.0000	7.80982	3.05210	-4.60811	5.74458	36.69661	-0.46066	6.0143	-0.01126	0.01404	0.08967	0.00144	0	0.709668	-0.192017	-0.342957
472	Thai President Foods	Thailand	0.00709	0.00000	0.38470	79.69054	0.0000	22.88867	7.37551	17.88526	0.26418	3.07289	-4.94897	4.3782	0.22443	0.00332	0.03856	0.00000	0	0.628482	0.261498	-0.464449
473	Thai Rubber Latex	Thailand	0.50904	0.00000	0.54160	33.23446	0.0000	13.80523	-1.53089	3.80362	0.00168	1.98716	-0.67524	3.5036	0.11445	0.00005	0.05979	0.00000	0	0.440526	0.161783	-0.819787
474	Thai Textile	Thailand	0.46831	0.00000	0.68900	70.18462	0.0000	17.92650	-9.60470	5.47664	0.28926	4.17201	-0.75863	4.2511	0.07803	0.00412	0.05944	0.00000	0	0.572334	0.091257	-0.558032
475	Thai Toray Textile	Thailand	0.36823	0.00000	0.52070	31.69998	0.0000	-13.85075	4.45212	3.53743	0.51353	4.90415	-0.99904	3.4563	0.11159	0.01620	0.15471	0.00000	0	0.324974	0.149845	-1.124009
476	Thai Wah Foods	Thailand	0.11255	0.14710	0.66250	18.07873	0.0000	3.48706	1.08412	1.32759	0.26888	0.87208	-2.18432	2.8947	0.07343	0.01487	0.04824	0.02164	0	0.088101	0.063340	-2.429277
477	The Aromatics Thailand Public Com	Thailand	0.84589	0.00120	0.79520	729.21451	0.0000	0.39329	-13.77774	-61.04274	1.01072	35.86701	-0.16736	6.5920	-0.08371	0.00139	0.04919	0.00000	0	0.833815	-1.149587	-0.181744
478	Tropical Canning	Thailand	0.10817	0.00000	0.44960	43.11689	0.0000	12.14284	-1.56632	3.44910	0.03183	0.96399	-2.22401	3.7639	0.07999	0.00074	0.02236	0.00000	0	0.110536	0.081498	-2.202413
479	True Corporation PLC	Thailand	0.88976	0.00890	0.98160	2,025.63249	0.0000	-11.07507	35.36189	24.27384	11.82572	177.68544	-0.11680	7.6136	0.01198	0.00584	0.08772	0.00008	0	1.106268	-4.706679	0.100992
480	United Communications	Thailand	0.65625	0.00000	0.83730	469.63616	0.0000	-71.68594	4.74905	94.13423	3.39753	12.51145	-0.42121	6.1520	0.20044	0.00723	0.02664	0.00000	0	1.248317	0.088303	0.221796
481	Univentures Public Company Limite	Thailand	0.01778	0.11330	0.34830	11.66574	0.0000	0.45994	-0.17872	0.33509	0.29707	0.15989	-4.02965	2.4567	0.02872	0.02547	0.01371	0.01284	0	0.370830	0.028652	-0.992013
482	Cafe De Coral Holdings Limited	Hong Kong	0.23011	0.03351	0.42244	211.18223	1.0000	-9.02844	19.29918	37.88854	8.05163	21.71435	-1.46919	5.3527	0.17941	0.03813	0.10282	0.00112	0	0.771216	0.200737	-0.259787
483	Cathay Pacific Airways Limited	Hong Kong	0.66805	0.00001	0.71212	8,898.56846	1.0000	-18.49886	276.15716	981.16564	52.69294	944.80238	-0.40339	9.0936	0.11026	0.00592	0.10617	0.00000	0	0.908281	0.159782	-0.096202
484	Cheung Kong Infrastructure Holdin	Hong Kong	0.44196	0.14824	0.84828	4,686.85119	1.0000	32.13692	30.89781	143.71968	0.76924	7.69487	-0.81654	8.4525	0.03066	0.00016	0.00164	0.02197	0	1.028246	0.135278	0.027855
485	China Aerospace International Hol	Hong Kong	0.63268	0.00000	0.41860	571.57238	1.0000	-22.46239	-29.84228	-111.30736	8.85011	7.28461	-0.45779	6.3484	-0.19474	0.01548	0.01274	0.00000	0	0.475172	-0.519027	-0.744079
486	China Chengtong Development Gr	Hong Kong	0.27754	0.00591	0.35783	243.34265	1.0000	16.45465	-0.34971	12.91505	60.10391	0.10568	-1.28181	5.4945	0.05307	0.24699	0.00043	0.00003	0	0.138259	0.047883	-1.978626
487	Chinney Investments Limited	Hong Kong	0.41509	0.35672	0.55955	255.43088	1.0000	-53.70336	-21.91075	1.07609	1.06723	4.54440	-0.87926	5.5430	0.00421	0.00418	0.01779	0.12725	1	0.267769	0.007894	-1.317629
488	Dairy Farm International Holdings	Hong Kong	1.41261	0.00164	0.75733	2,357.13766	0.0000	-12.01277	-76.33843	-158.87186	72.39809	123.35570	0.34544	7.7652	-0.06740	0.03071	0.05233	0.00000	0	0.670191	-0.334679	-0.400192
489	Eganagoldpfeil Limited	Hong Kong	0.69162	0.01087	0.79925	361.34242	0.0000	4.96612	59.29353	25.38736	47.02608	14.28603	-0.36872	5.8898	0.07026	0.13014	0.03954	0.00012	0	0.750244	0.087982	-0.287357
490	Esprit Holdings Limited	Hong Kong	0.23979	0.28388	0.58814	458.69583	0.0000	14.86704	48.40159	116.64852	95.24668	77.00274	-1.42801	6.1284	0.25430	0.20765	0.16787	0.08059	1	2.647165	0.266798	0.973489
491	Gold Peak Industries Holdings Limi	Hong Kong	1.39476	0.35252	0.33115	424.92081	1.0000	9.40816	-4.51397	37.95904	9.40063	6.84520	0.33272	6.0519	0.08933	0.02212	0.01611	0.12427	1	0.534229	0.133520	-0.626931
492	Golden Resources Development Int	Hong Kong	0.35182	0.10457	0.51217	146.66761	0.0000	3.18679	9.87543	11.94247	22.82207	1.35765	-1.04463	4.9882	0.08143	0.15560	0.00926	0.01093	0	0.068351	0.118561	-2.683094
493	Hanny Holdings Limited	Hong Kong	0.47230	0.13953	0.21608	494.87755	1.0000	98.65553	-17.17036	47.25115	22.90735	1.58224	-0.75014	6.2043	0.09548	0.04629	0.00320	0.01947	0	0.838836	0.112287	-0.175740
494	Hongkong Catering Management	Hong Kong	0.37146	0.01462	0.72096	95.27428	0.0000	1.03362	-3.43287	7.55988	9.93566	2.69974	-0.99032	4.5568	0.07935	0.10428	0.02834	0.00021	0	0.401677	0.112275	-0.912106
495	I-Cable Communications Limited	Hong Kong	1.40100	0.00053	0.79482	529.06802	1.0000	-15.15891	22.20552	11.81642	29.81113	47.00568	0.33719	6.2711	0.02233	0.05635	0.08885	0.00000	0	1.847563	0.015624	0.613868
496	IDT International Limited	Hong Kong	0.26044	0.08509	0.53297	234.82958	1.0000	51.51641	-13.75458	62.44142	0.02569	13.94890	-1.34539	5.4589	0.26590	0.00011	0.05940	0.00724	0	0.672581	0.390303	-0.396633
497	Jardine Matheson Holdings Limited	Hong Kong	0.93930	0.08893	0.23113	80,641.09830	1.0000	4.73409	258.74818	877.69206	393.88485	479.21637	-0.06262	11.2978	0.01088	0.00488	0.00594	0.00791	0	0.351029	0.279461	-1.046887
498	Jardine Strategic Holdings Limited	Hong Kong	0.51371	0.00022	0.74035	7,760.89475	1.0000	12.25756	-117.70506	367.90325	122.79675	450.20327	-0.66609	8.9569	0.04740	0.01582	0.05801	0.00000	0	0.666464	0.134927	-0.405769
499	Kwoon Chung Bus Holdings Limited	Hong Kong	0.23271	0.01591	0.59656	191.23154	1.0000	28.80418	-4.39081	8.04778	2.05009	26.34065	-1.45796	5.2535	0.04208	0.01072	0.13774	0.00025	0	0.421612	0.065245	-0.863671
500	Lai Sun Garments International Lim	Hong Kong	0.23803	0.08670	0.42019	502.80321	1.0000	-84.91739	5.82851	-237.61539	16.46093	0.23153	-1.43536	6.2202	-0.47258	0.03274	0.00046	0.00752	0	0.100814	-0.323821	-2.294477
501	Lam Soon (Hong Kong) Limited	Hong Kong	0.82677	0.08420	0.91433	336.19340	0.0000	-2.43649	15.05826	-6.40110	4.97557	8.51622	-0.19023	5.8177	-0.01904	0.01480	0.02533	0.00709	0	0.254926	-0.083774	-1.366780
502	Lenovo Group Limited	Hong Kong	0.26587	0.00735	0.57669	1,037.73778	1.0000	48.93236	28.11302	67.60112	242.45175	215.31090	-1.32473	6.9448	0.06514	0.23363	0.20748	0.00005	0	11.040469	0.095411	2.401568
503	Mandarin Oriental International Li	Hong Kong	0.44653	0.00076	0.66788	1,502.96025	1.0000	22.91514	-18.38517	45.96293	24.49935	37.61698	-0.80626	7.3152	0.03058	0.01630	0.02503	0.00000	0	0.606252	0.018421	-0.500460
504	Ming Pao Enterprise Corp. Limited	Hong Kong	0.20571	0.00538	0.64795	201.47980	1.0000	3.87417	12.15900	13.15649	82.83570	4.00180	-1.58130	5.3057	0.06530	0.41114	0.01986	0.00003	0	0.834863	0.071199	-0.180487
505	Nam Hing Holdings Limited	Hong Kong	0.31824	0.18375	0.42340	45.56965	1.0000	-3.02225	2.38310	1.90612	0.27689	2.25128	-1.14495	3.8192	0.04183	0.00608	0.04940	0.03376	0	0.571892	0.013743	-0.558805
506	QPL International Holdings Limited	Hong Kong	0.91130	0.60770	0.39889	183.07911	1.0000	-49.48155	-3.85159	158.42891	0.64193	5.62569	-0.09288	5.2099	0.86536	0.00351	0.03073	0.36930	1	4.122809	1.939130	1.416535
507	Sasa International Holdings Limite	Hong Kong	0.20072	0.27855	0.67839	157.76746	1.0000	2.12750	24.64561	10.17171	0.43794	9.96310	-1.60587	5.0611	0.06447	0.00278	0.06315	0.07759	1	1.132826	0.068821	0.124715
508	Stelux Holdings International Limite	Hong Kong	1.01518	0.12100	0.58907	236.17922	1.0000	-1.93636	5.37084	18.44886	3.80222	8.27784	0.01507	5.4646	0.07811	0.01610	0.03505	0.01464	0	0.616819	0.128752	-0.483180

No.	Company Name	Country	D/E	MSO	EBO	Total Assets	Industry	Growth TA	FCF	EBIT	Intangibles	Depreciation	Ln D/E	SIZE	PROF	INTA	NDTS	MSO (2)	D(EBO)	Tobin's Q	ROE	Ln Tobin's Q
509	Stone Group Holdings Limited	Hong Kong	0.27303	0.06857	0.38684	156.78150	1.0000	-16.52194	1.35938	-32.98796	1.05386	1.93288	-1.29817	5.0549	-0.21041	0.00672	0.01233	0.00470	0	0.803371	-0.268393	-0.218939
510	Texwinca Holdings Limited	Hong Kong	0.28422	0.05243	0.69455	261.24595	0.0000	8.23320	28.76865	41.20993	5.88326	37.57028	-1.25802	5.5655	0.15774	0.02252	0.14381	0.00275	0	0.564543	0.230148	-0.571739
511	Tysan Holdings Limited	Hong Kong	0.53915	0.21256	0.50725	228.56039	1.0000	-0.71393	6.63546	10.42112	1.36159	5.17875	-0.61775	5.4318	0.04559	0.00596	0.02266	0.04518	1	0.267895	0.019250	-1.317159
512	Van Shung Chong Holdings Limited	Hong Kong	0.58229	0.00593	0.59316	156.56833	1.0000	52.91015	-1.58338	16.29654	0.48314	2.64530	-0.54079	5.0535	0.10409	0.00309	0.01690	0.00004	0	1.306197	0.158076	0.267120
513	Yangtzekiang Garment Limited	Hong Kong	0.34865	0.12558	0.14001	90.57114	0.0000	-2.10998	12.61170	6.35151	0.27805	3.56785	-1.05369	4.5061	0.07013	0.00307	0.03939	0.01577	0	0.491111	0.158569	-0.711085
514	Amtran Technology Company	Taiwan	0.20331	0.06623	0.22785	168.81846	1.0000	68.14064	-38.84251	16.20159	0.06433	2.08053	-1.59301	5.1288	0.09597	0.00038	0.01232	0.00439	1	0.366906	0.123607	-1.002650
515	Associated Industries China	Taiwan	0.38444	0.23306	0.74940	86.15955	1.0000	-3.58491	2.49066	-10.65362	0.58476	1.73430	-0.95598	4.4562	-0.12365	0.00679	0.02013	0.05432	1	0.082265	-0.237188	-2.497815
516	Audix Corp.	Taiwan	0.32753	0.27273	0.47495	67.47573	1.0000	33.36448	2.60924	11.98078	1.50224	1.65709	-1.11619	4.2118	0.17756	0.02226	0.02456	0.07438	1	1.007470	0.219994	0.007442
517	Cathay Real Estate Development C	Taiwan	0.25535	0.18956	0.80432	706.07333	1.0000	-10.31760	99.95324	34.69787	0.05743	1.06306	-1.36512	6.5597	0.04914	0.00008	0.00151	0.03593	1	0.496903	0.042791	-0.699360
518	Chien Tai Cement Company Limite	Taiwan	1.01177	0.00000	0.86544	545.10240	1.0000	-18.80129	-19.54855	-61.90563	0.00145	20.38523	0.01170	6.3010	-0.11357	0.00000	0.03740	0.00000	1	0.514721	-0.340395	-0.664131
519	Chin-Poon Industrial	Taiwan	0.20135	0.14280	0.22053	228.21369	1.0000	7.02301	10.86452	18.07170	3.46333	9.36670	-1.60269	5.4303	0.07919	0.01518	0.04104	0.02039	1	0.375770	0.089807	-0.978778
520	Gigamedia Limited	Taiwan	0.20004	0.00802	0.60416	9,710.39800	1.0000	238.44257	-972.89600	-35.92458	948.00400	18.09099	-1.60922	9.1810	-0.00370	0.09763	0.00186	0.00006	1	0.774803	-0.128921	-0.255147
521	Goldsun Development & Construct	Taiwan	0.62478	0.09002	0.04677	711.23698	0.0000	6.38803	-26.36718	13.96261	4.12354	8.34272	-0.47035	6.5670	0.01963	0.00580	0.01173	0.00810	0	0.362645	0.000388	-1.014332
522	Helix Technology Inc	Taiwan	0.56247	0.21135	0.41704	110.12261	1.0000	141.13763	-31.60767	5.82779	0.47485	2.19533	-0.57542	4.7016	0.05292	0.00431	0.01994	0.04467	1	0.398930	0.063749	-0.918969
523	Lucky Cement Corp.	Taiwan	0.95628	0.05639	0.32023	291.75268	1.0000	-4.05059	-5.67182	-10.71229	0.27142	13.35929	-0.04471	5.6759	-0.03672	0.00093	0.04579	0.00318	1	0.514101	-0.100645	-0.665335
524	Macronix International Company L	Taiwan	0.46931	0.50573	0.02970	2,141.84636	1.0000	42.50055	126.19280	361.73216	23.62919	182.82450	-0.75648	7.6694	0.16889	0.01103	0.08536	0.25576	0	1.447908	0.238098	0.370120
525	Nantex Industry	Taiwan	0.11358	0.13647	0.31657	90.78941	1.0000	11.28330	3.08434	4.95544	0.06756	3.75923	-2.17525	4.5085	0.05458	0.00074	0.04141	0.01863	1	0.362071	0.059696	-1.015915
526	Promos Technologies Inc	Taiwan	0.30978	0.00000	0.00320	1,711.76978	1.0000	8.02823	405.31323	267.58075	191.68455	198.08416	-1.17188	7.4453	0.15632	0.11198	0.11572	0.00000	0	1.386545	0.162426	0.326815
527	Sanyo Electric (Taiwan) Company	Taiwan	0.30741	0.31660	0.54467	180.53555	1.0000	2.60186	10.58134	9.33550	0.43377	4.31023	-1.17958	5.1959	0.05171	0.00240	0.02387	0.10023	1	0.127469	0.055329	-2.059883
528	Taiwan Semiconductor Manufactur	Taiwan	0.22604	0.30821	0.61618	11,010.70104	1.0000	131.78950	-271.32581	2019.37616	348.55814	1252.82635	-1.48705	9.3066	0.18340	0.03166	0.11378	0.09499	1	2.604390	0.261728	0.957198
529	Tecom Company Limited	Taiwan	0.66903	0.52081	0.31164	234.49819	1.0000	28.27377	-2.26540	13.33695	1.35666	2.78266	-0.40193	5.4574	0.05687	0.00579	0.01187	0.27125	1	0.939745	0.086895	-0.062146
530	Usi Corp.	Taiwan	0.05515	0.84101	0.02966	593.97472	1.0000	8.98931	-10.36978	7.80959	0.50245	6.31815	-2.89764	6.3868	0.01315	0.00085	0.01064	0.70730	0	0.586090	-0.008465	-0.534282
531	Vanguard International Semicondu	Taiwan	0.60738	0.17985	0.54504	1,139.56563	1.0000	8.50357	62.40747	99.96736	46.40013	191.15000	-0.49861	7.0384	0.08772	0.04072	0.16774	0.03235	1	0.946386	0.116719	-0.055105
532	Yieh Phui Enterprise	Taiwan	0.84303	0.06255	0.20795	630.26049	1.0000	21.33671	-13.99822	42.02814	0.28006	17.64053	-0.17075	6.4461	0.06668	0.00044	0.02799	0.00391	1	0.440012	0.068859	-0.820953

Appendix 2

Model I

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,427[a]	,182	,170	1,132966415	2,034

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF

b. Variable dependiente: LnDE

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	149,486	8	18,686	14,557	,000[a]
	Residual	671,330	523	1,284		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-3,17985821	1,48043847	-1,0990958	,530582029	532
Residuo bruto	-10,7462330	2,9356771	,000000000	1,124399439	532
Valor pronosticado tip.	-3,922	4,862	,000	1,000	532
Residuo tip.	-9,485	2,591	,000	,992	532

a. Variable dependiente: LnDE

Appendix 2

Coeficientes [a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,278	,229		-9,932	,000	-2,728	-1,827					
	EBO	,621	,203	,124	3,062	,002	,222	1,019	,184	,133	,121	,956	1,046
	SIZE	,226	,033	,272	6,738	,000	,160	,291	,279	,283	,266	,959	1,042
	Industry	-,240	,103	-,093	-2,330	,020	-,442	-,038	-,090	-,101	-,092	,973	1,028
	GrowthTA	-,002	,001	-,089	-2,217	,027	-,003	,000	-,143	-,096	-,088	,960	1,042
	PROF	-2,256	,397	-,230	-5,682	,000	-3,037	-1,476	-,257	-,241	-,225	,953	1,050
	FCF	8,11E-005	,000	,018	,453	,651	,000	,000	-,022	,020	,018	,958	1,044
	INTA	,078	,666	,005	,117	,907	-1,230	1,386	,010	,005	,005	,981	1,019
	NDTS	-2,033	1,603	-,051	-1,268	,205	-5,183	1,117	-,065	-,055	-,050	,952	1,051

a. Variable dependiente: LnDE

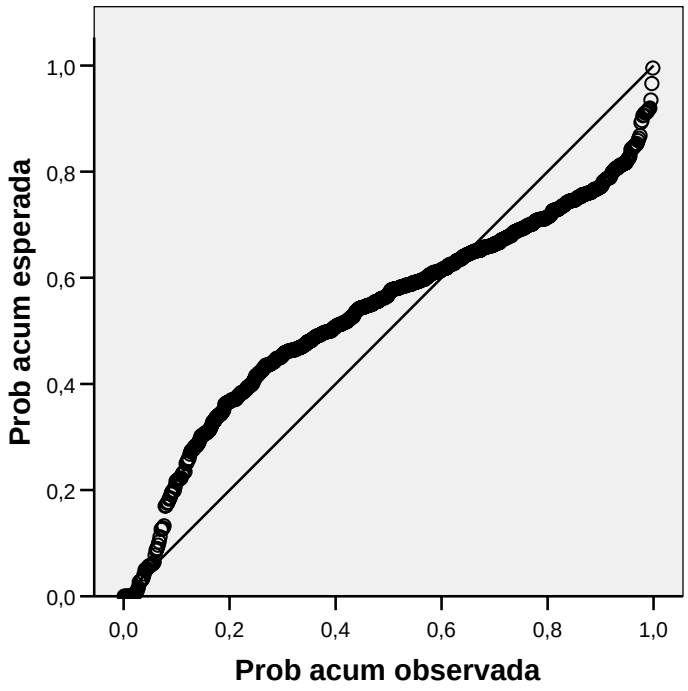
Correlaciones

			ARES	EBO	SIZE	Industry	GrowthTA	PROF	FCF	INTA	NDTS
Rho de Spearman	ARES	Coeficiente de correlación	1,000	-,067	-,249**	,209**	,061	,049	-,005	,011	,008
		Sig. (bilateral)	.	,123	,000	,000	,158	,263	,902	,799	,850
		N	532	532	532	532	532	532	532	532	532
	EBO	Coeficiente de correlación	-,067	1,000	,084	-,056	-,156**	-,172**	,041	,081	,020
		Sig. (bilateral)	,123	.	,052	,198	,000	,000	,348	,061	,644
		N	532	532	532	532	532	532	532	532	532
	SIZE	Coeficiente de correlación	-,249**	,084	1,000	-,017	-,011	-,047	,074	,055	-,048
		Sig. (bilateral)	,000	,052	.	,688	,794	,275	,086	,204	,273
		N	532	532	532	532	532	532	532	532	532
	Industry	Coeficiente de correlación	,209**	-,056	-,017	1,000	,024	-,090*	,016	,057	-,171**
		Sig. (bilateral)	,000	,198	,688	.	,586	,037	,711	,189	,000
		N	532	532	532	532	532	532	532	532	532
	GrowthTA	Coeficiente de correlación	,061	-,156**	-,011	,024	1,000	,283**	-,187**	,103*	,080
		Sig. (bilateral)	,158	,000	,794	,586	.	,000	,000	,018	,065
		N	532	532	532	532	532	532	532	532	532
	PROF	Coeficiente de correlación	,049	-,172**	-,047	-,090*	,283**	1,000	,264**	-,075	,195**
		Sig. (bilateral)	,263	,000	,275	,037	,000	.	,000	,085	,000
		N	532	532	532	532	532	532	532	532	532
	FCF	Coeficiente de correlación	-,005	,041	,074	,016	-,187**	,264**	1,000	-,008	,109*
		Sig. (bilateral)	,902	,348	,086	,711	,000	,000	.	,856	,012
		N	532	532	532	532	532	532	532	532	532
	INTA	Coeficiente de correlación	,011	,081	,055	,057	,103*	-,075	-,008	1,000	,126**
		Sig. (bilateral)	,799	,061	,204	,189	,018	,085	,856	.	,004
		N	532	532	532	532	532	532	532	532	532
	NDTS	Coeficiente de correlación	,008	,020	-,048	-,171**	,080	,195**	,109*	,126**	1,000
		Sig. (bilateral)	,850	,644	,273	,000	,065	,000	,012	,004	.
		N	532	532	532	532	532	532	532	532	532

**. La correlación es significativa al nivel 0,01 (bilateral).

*. La correlación es significativa al nivel 0,05 (bilateral).

Gráfico P-P normal de regresión Residuo tipificado



Appendix 3

Model II

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,411[a]	,169	,155	1,143051431	2,039

a. Variables predictoras: (Constante), NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, MSO

b. Variable dependiente: LnDE

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	138,787	9	15,421	11,803	,000[a]
	Residual	682,028	522	1,307		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-3,34942389	1,66555703	-1,0990958	,511243591	532
Residuo bruto	-10,636331	3,2097595	,000000000	1,133323157	532
Valor pronosticado tip.	-4,402	5,408	,000	1,000	532
Residuo tip.	-9,305	2,808	,000	,991	532

a. Variable dependiente: LnDE

Appendix 3

Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,037	,226		-9,027	,000	-2,480	-1,594					
	MSO	,693	,862	,077	,804	,422	-1,000	2,387	-,079	,035	,032	,173	5,794
	MSO2	-1,762	1,783	-,094	-,988	,323	-5,264	1,740	-,075	-,043	-,039	,176	5,683
	SIZE	,234	,034	,282	6,836	,000	,167	,301	,279	,287	,273	,933	1,072
	Industry	-,258	,104	-,100	-2,480	,013	-,462	-,054	-,090	-,108	-,099	,971	1,030
	GrowthTA	-,002	,001	-,109	-2,695	,007	-,003	-,001	-,143	-,117	-,108	,976	1,025
	PROF	-2,353	,401	-,240	-5,870	,000	-3,140	-1,565	-,257	-,249	-,234	,952	1,051
	FCF	8,54E-005	,000	,019	,472	,637	,000	,000	-,022	,021	,019	,957	1,045
	INTA	,251	,674	,015	,373	,710	-1,073	1,575	,010	,016	,015	,975	1,025
	NDTS	-2,022	1,618	-,051	-1,250	,212	-5,200	1,156	-,065	-,055	-,050	,952	1,051

a. Variable dependiente: LnDE

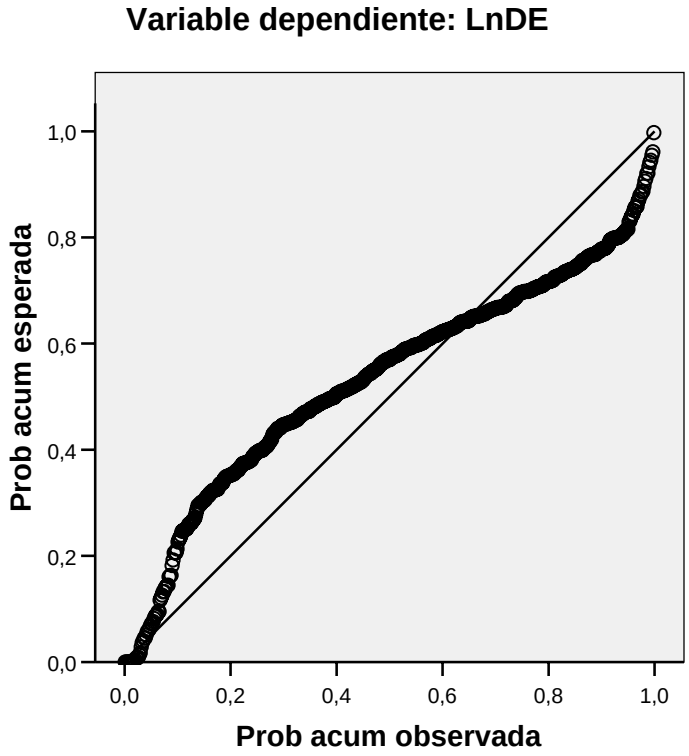
Correlaciones

			ARES	MSO	MSO2	SIZE	Industry	GrowthTA	PROF	FCF	INTA	NDTS
Rho de Spearman	ARES	Coeficiente de correlación	1,000	,000	,001	-,260**	,197**	,034	,043	,021	-,009	,018
		Sig. (bilateral)	.	,996	,982	,000	,000	,435	,320	,627	,839	,685
		N	532	532	532	532	532	532	532	532	532	532
	MSO	Coeficiente de correlación	,000	1,000	,986**	-,176**	,076	,117**	,081	-,030	-,049	-,053
		Sig. (bilateral)	,996	.	,000	,000	,081	,007	,061	,493	,259	,226
		N	532	532	532	532	532	532	532	532	532	532
	MSO2	Coeficiente de correlación	,001	,986**	1,000	-,185**	,078	,119**	,090*	-,026	-,061	-,057
		Sig. (bilateral)	,982	,000	.	,000	,073	,006	,037	,556	,161	,192
		N	532	532	532	532	532	532	532	532	532	532
	SIZE	Coeficiente de correlación	-,260**	-,176**	-,185**	1,000	-,017	-,011	-,047	,074	,055	-,048
		Sig. (bilateral)	,000	,000	,000	.	,688	,794	,275	,086	,204	,273
		N	532	532	532	532	532	532	532	532	532	532
	Industry	Coeficiente de correlación	,197**	,076	,078	-,017	1,000	,024	-,090*	,016	,057	-,171**
		Sig. (bilateral)	,000	,081	,073	,688	.	,586	,037	,711	,189	,000
		N	532	532	532	532	532	532	532	532	532	532
	GrowthTA	Coeficiente de correlación	,034	,117**	,119**	-,011	,024	1,000	,283**	-,187**	,103*	,080
		Sig. (bilateral)	,435	,007	,006	,794	,586	.	,000	,000	,018	,065
		N	532	532	532	532	532	532	532	532	532	532
	PROF	Coeficiente de correlación	,043	,081	,090*	-,047	-,090*	,283**	1,000	,264**	-,075	,195**
		Sig. (bilateral)	,320	,061	,037	,275	,037	,000	.	,000	,085	,000
		N	532	532	532	532	532	532	532	532	532	532
	FCF	Coeficiente de correlación	,021	-,030	-,026	,074	,016	-,187**	,264**	1,000	-,008	,109*
		Sig. (bilateral)	,627	,493	,556	,086	,711	,000	,000	.	,856	,012
		N	532	532	532	532	532	532	532	532	532	532
	INTA	Coeficiente de correlación	-,009	-,049	-,061	,055	,057	,103*	-,075	-,008	1,000	,126**
		Sig. (bilateral)	,839	,259	,161	,204	,189	,018	,085	,856	.	,004
		N	532	532	532	532	532	532	532	532	532	532
	NDTS	Coeficiente de correlación	,018	-,053	-,057	-,048	-,171**	,080	,195**	,109*	,126**	1,000
		Sig. (bilateral)	,685	,226	,192	,273	,000	,065	,000	,012	,004	.
		N	532	532	532	532	532	532	532	532	532	532

**. La correlación es significativa al nivel 0,01 (bilateral).

*. La correlación es significativa al nivel 0,05 (bilateral).

Gráfico P-P normal de regresión Residuo tipificado



Appendix 4

Model III

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,436[a]	,190	,173	1,130574703	2,025

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	156,152	11	14,196	11,106	,000[a]
	Residual	664,664	520	1,278		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-3,1162367	1,56622112	-1,0990958	,542283072	532
Residuo bruto	-10,637478	3,01242304	,000000000	1,118803136	532
Valor pronosticado tip.	-3,720	4,915	,000	1,000	532
Residuo tip.	-9,409	2,665	,000	,990	532

a. Variable dependiente: LnDE

Appendix 4

Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,560	,265		-9,668	,000	-3,081	-2,040					
	MSO	2,614	1,195	,291	2,188	,029	,267	4,961	-,079	,096	,086	,088	11,378
	MSO2	-3,499	1,898	-,187	-1,844	,066	-7,228	,229	-,075	-,081	-,073	,152	6,586
	EBO	,841	,231	,168	3,643	,000	,387	1,294	,184	,158	,144	,734	1,362
	DEBO	-,210	,201	-,071	-1,048	,295	-,605	,184	-,060	-,046	-,041	,341	2,930
	SIZE	,237	,034	,285	6,983	,000	,170	,303	,279	,293	,276	,932	1,073
	Industry	-,249	,103	-,097	-2,420	,016	-,451	-,047	-,090	-,106	-,096	,970	1,031
	GrowthTA	-,002	,001	-,091	-2,246	,025	-,003	,000	-,143	-,098	-,089	,957	1,045
	PROF	-2,281	,399	-,233	-5,722	,000	-3,064	-1,498	-,257	-,243	-,226	,942	1,062
	FCF	6,32E-005	,000	,014	,353	,724	,000	,000	-,022	,015	,014	,954	1,048
	INTA	,180	,667	,011	,270	,787	-1,130	1,490	,010	,012	,011	,974	1,026
	NDTS	-1,942	1,601	-,049	-1,213	,226	-5,088	1,204	-,065	-,053	-,048	,950	1,052

a. Variable dependiente: LnDE

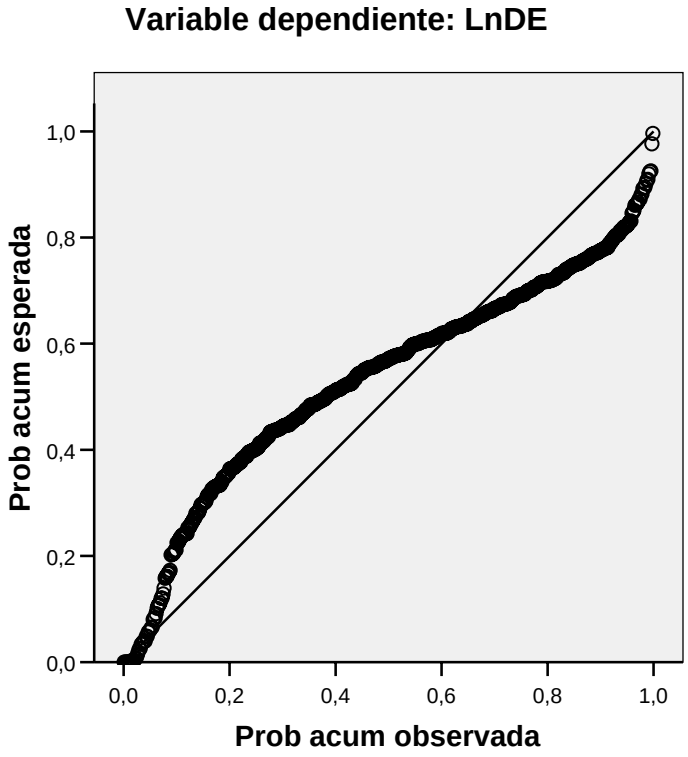
Correlaciones

			ARES	MSO	MSO2	EBO	DEBO	SIZE	Industry	GrowthTA	PROF	FCF	INTA	NDTS
Rho de Spearman	ARES	Coeficiente de correlación	1,000	,039	,036	-,058	,079	-,253**	,228**	,063	,064	-,015	-,008	,037
		Sig. (bilateral)	.	,375	,404	,185	,067	,000	,000	,149	,138	,731	,857	,392
		N	532	532	532	532	532	532	532	532	532	532	532	532
	MSO	Coeficiente de correlación	,039	1,000	,986**	-,442**	,695**	-,176**	,076	,117**	,081	-,030	-,049	-,053
		Sig. (bilateral)	,375	.	,000	,000	,000	,000	,081	,007	,061	,493	,259	,226
		N	532	532	532	532	532	532	532	532	532	532	532	532
	MSO2	Coeficiente de correlación	,036	,986**	1,000	-,466**	,705**	-,185**	,078	,119**	,090*	-,026	-,061	-,057
		Sig. (bilateral)	,404	,000	.	,000	,000	,000	,073	,006	,037	,556	,161	,192
		N	532	532	532	532	532	532	532	532	532	532	532	532
	EBO	Coeficiente de correlación	-,058	-,442**	-,466**	1,000	-,313**	,084	-,056	-,156**	-,172**	,041	,081	,020
		Sig. (bilateral)	,185	,000	,000	.	,000	,052	,198	,000	,000	,348	,061	,644
		N	532	532	532	532	532	532	532	532	532	532	532	532
	DEBO	Coeficiente de correlación	,079	,695**	,705**	-,313**	1,000	-,148**	,045	,030	,045	-,038	-,073	,006
		Sig. (bilateral)	,067	,000	,000	,000	.	,001	,296	,493	,300	,378	,094	,898
		N	532	532	532	532	532	532	532	532	532	532	532	532
	SIZE	Coeficiente de correlación	-,253**	-,176**	-,185**	,084	-,148**	1,000	-,017	-,011	-,047	,074	,055	-,048
		Sig. (bilateral)	,000	,000	,000	,052	,001	.	,688	,794	,275	,086	,204	,273
		N	532	532	532	532	532	532	532	532	532	532	532	532
	Industry	Coeficiente de correlación	,228**	,076	,078	-,056	,045	-,017	1,000	,024	-,090*	,016	,057	-,171**
		Sig. (bilateral)	,000	,081	,073	,198	,296	,688	.	,586	,037	,711	,189	,000
		N	532	532	532	532	532	532	532	532	532	532	532	532
	GrowthTA	Coeficiente de correlación	,063	,117**	,119**	-,156**	,030	-,011	,024	1,000	,283**	-,187**	,103*	,080
		Sig. (bilateral)	,149	,007	,006	,000	,493	,794	,586	.	,000	,000	,018	,065
		N	532	532	532	532	532	532	532	532	532	532	532	532
	PROF	Coeficiente de correlación	,064	,081	,090*	-,172**	,045	-,047	-,090*	,283**	1,000	,264**	-,075	,195**
		Sig. (bilateral)	,138	,061	,037	,000	,300	,275	,037	,000	.	,000	,085	,000
		N	532	532	532	532	532	532	532	532	532	532	532	532
	FCF	Coeficiente de correlación	-,015	-,030	-,026	,041	-,038	,074	,016	-,187**	,264**	1,000	-,008	,109*
		Sig. (bilateral)	,731	,493	,556	,348	,378	,086	,711	,000	,000	.	,856	,012
		N	532	532	532	532	532	532	532	532	532	532	532	532
	INTA	Coeficiente de correlación	-,008	-,049	-,061	,081	-,073	,055	,057	,103*	-,075	-,008	1,000	,126**
		Sig. (bilateral)	,857	,259	,161	,061	,094	,204	,189	,018	,085	,856	.	,004
		N	532	532	532	532	532	532	532	532	532	532	532	532
	NDTS	Coeficiente de correlación	,037	-,053	-,057	,020	,006	-,048	-,171**	,080	,195**	,109*	,126**	1,000
		Sig. (bilateral)	,392	,226	,192	,644	,898	,273	,000	,065	,000	,012	,004	.
		N	532	532	532	532	532	532	532	532	532	532	532	532

**. La correlación es significativa al nivel 0,01 (bilateral).

*. La correlación es significativa al nivel 0,05 (bilateral).

Gráfico P-P normal de regresión Residuo tipificado



Appendix 5

Sensitivity Analysis

Model A:
Omitted GROWTH from the Joint Model

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, SIZE, PROF, DEBO, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,427[a]	,182	,167	1,134954714	2,040

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, SIZE, PROF, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	149,704	10	14,970	11,622	,000[a]
	Residual	671,112	521	1,288		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, SIZE, PROF, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-3,2521577	1,53373051	-1,09909585	,530968554	532
Residuo bruto	-10,679166	3,1592777	,000000000	1,124216964	532
Valor pronosticado tip.	-4,055	4,959	,000	1,000	532
Residuo tip.	-9,409	2,784	,000	,991	532

a. Variable dependiente: LnDE

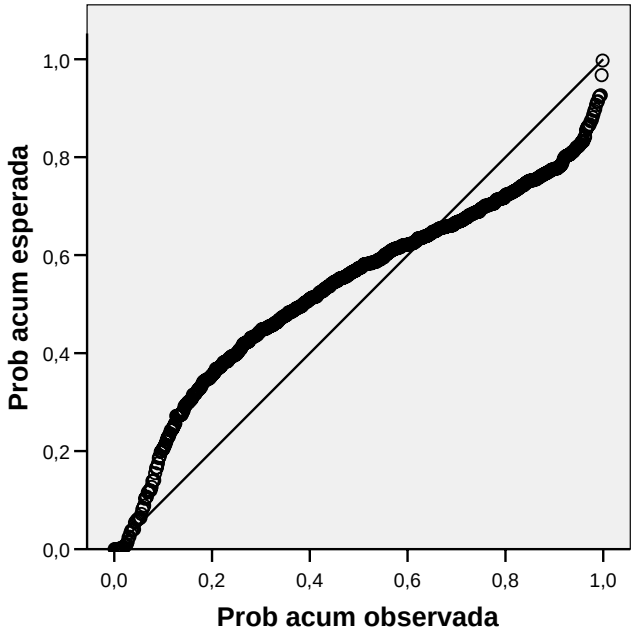
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,617	,265		-9,889	,000	-3,137	-2,097					
	MSO	2,540	1,199	,283	2,119	,035	,185	4,896	-,079	,092	,084	,088	11,370
	MSO2	-3,333	1,904	-,178	-1,751	,081	-7,074	,407	-,075	-,076	-,069	,152	6,576
	EBO	,909	,230	,181	3,958	,000	,458	1,360	,184	,171	,157	,747	1,339
	DEBO	-,196	,201	-,066	-,972	,332	-,591	,200	-,060	-,043	-,038	,342	2,927
	SIZE	,239	,034	,288	7,021	,000	,172	,306	,279	,294	,278	,933	1,072
	Industry	-,264	,103	-,103	-2,560	,011	-,466	-,061	-,090	-,111	-,101	,974	1,027
	PROF	-2,356	,399	-,240	-5,910	,000	-3,140	-1,573	-,257	-,251	-,234	,949	1,054
	FCF	9,08E-005	,000	,020	,506	,613	,000	,000	-,022	,022	,020	,959	1,043
	INTA	,137	,669	,008	,205	,838	-1,177	1,451	,010	,009	,008	,975	1,025
	NDTS	-1,829	1,607	-,046	-1,139	,255	-4,986	1,327	-,065	-,050	-,045	,951	1,051

a. Variable dependiente: LnDE

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnDE



Model B:
Omitted GROWTH and PROF from the Joint Model

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, SIZE, DEBO, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,357[a]	,128	,113	1,171260881	1,995

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, SIZE, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	104,708	9	11,634	8,481	,000[a]
	Residual	716,107	522	1,372		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, SIZE, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-2,472396	,17369798	-1,099096	,444062007	532
Residuo bruto	-10,93990	2,6013658	,00000000	1,161292522	532
Valor pronosticado tip.	-3,093	2,866	,000	1,000	532
Residuo tip.	-9,340	2,221	,000	,991	532

a. Variable dependiente: LnDE

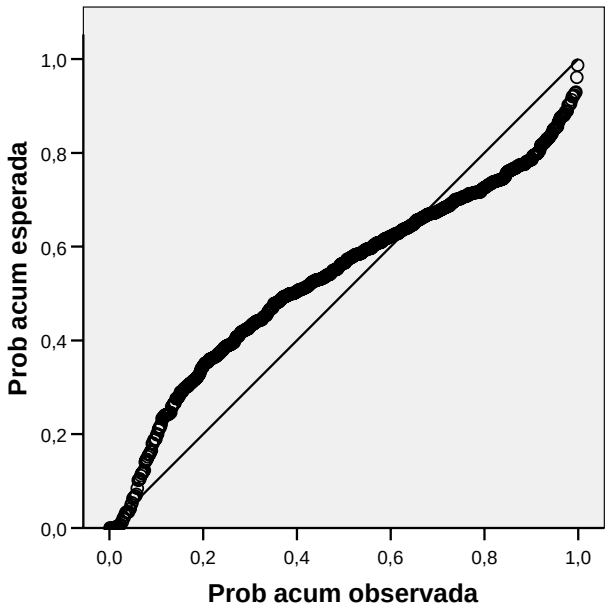
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,754	,272		-10,122	,000	-3,288	-2,219					
	MSO	2,318	1,237	,258	1,875	,061	-,111	4,748	-,079	,082	,077	,088	11,359
	MSO2	-3,607	1,964	-,192	-1,836	,067	-7,466	,251	-,075	-,080	-,075	,152	6,572
	EBO	1,010	,236	,202	4,272	,000	,545	1,474	,184	,184	,175	,751	1,331
	DEBO	-,106	,207	-,036	-,509	,611	-,513	,302	-,060	-,022	-,021	,344	2,910
	SIZE	,241	,035	,291	6,876	,000	,172	,310	,279	,288	,281	,933	1,072
	Industry	-,231	,106	-,090	-2,175	,030	-,439	-,022	-,090	-,095	-,089	,977	1,024
	FCF	,000	,000	,023	,558	,577	,000	,000	-,022	,024	,023	,959	1,043
	INTA	,088	,690	,005	,127	,899	-1,268	1,444	,010	,006	,005	,975	1,025
	NDTS	-3,301	1,638	-,083	-2,015	,044	-6,519	-,082	-,065	-,088	-,082	,975	1,026

a. Variable dependiente: LnDE

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnDE



Model C:
Omitted SIZE, GROWTH, and PROF from the Joint Model

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, DEBO, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,220[a]	,049	,034	1,221978700	1,961

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	39,855	8	4,982	3,336	,001[a]
	Residual	780,960	523	1,493		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-1,965755	-,44774023	-1,099096	,273964132	532
Residuo bruto	-11,25679	2,6263144	,00000000	1,212738653	532
Valor pronosticado tip.	-3,163	2,378	,000	1,000	532
Residuo tip.	-9,212	2,149	,000	,992	532

a. Variable dependiente: LnDE

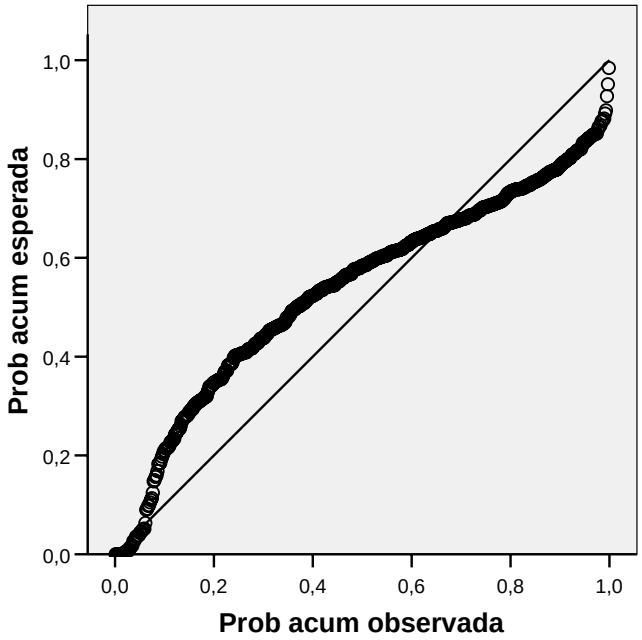
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-1,365	,190		-7,179	,000	-1,739	-,992					
	MSO	1,324	1,281	,148	1,034	,302	-1,193	3,842	-,079	,045	,044	,089	11,203
	MSO2	-2,050	2,036	-,109	-1,007	,314	-6,049	1,949	-,075	-,044	-,043	,154	6,484
	EBO	,979	,247	,195	3,972	,000	,495	1,464	,184	,171	,169	,751	1,331
	DEBO	-,121	,216	-,041	-,560	,576	-,546	,304	-,060	-,024	-,024	,344	2,910
	Industry	-,229	,111	-,089	-2,065	,039	-,446	-,011	-,090	-,090	-,088	,977	1,024
	FCF	,000	,000	-,028	-,645	,519	,000	,000	-,022	-,028	-,028	,990	1,010
	INTA	,178	,720	,011	,247	,805	-1,237	1,593	,010	,011	,011	,976	1,025
	NDTS	-2,982	1,708	-,075	-1,745	,082	-6,338	,375	-,065	-,076	-,074	,975	1,025

a. Variable dependiente: LnDE

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnDE



Appendix 6

Model IV – A
(Capital Structure & Firm Performance):
Leverage as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, ROE, FCF, INTA, Industry, GrowthTA, SIZE, PROF, LnTobinQ, DEBO, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnDE

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,442[a]	,195	,175	1,129108171	2,034

a. Variables predictoras: (Constante), NDTS, EBO, ROE, FCF, INTA, Industry, GrowthTA, SIZE, PROF, LnTobinQ, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	160,425	13	12,340	9,680	,000[a]
	Residual	660,391	518	1,275		
	Total	820,815	531			

a. Variables predictoras: (Constante), NDTS, EBO, ROE, FCF, INTA, Industry, GrowthTA, SIZE, PROF, LnTobinQ, DEBO, MSO2, MSO

b. Variable dependiente: LnDE

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-3,239111	1,69362009	-1,09909585	,549652621	532
Residuo bruto	-10,87212	2,8541722	,000000000	1,115201050	532
Valor pronosticado tip.	-3,893	5,081	,000	1,000	532
Residuo tip.	-9,629	2,528	,000	,988	532

a. Variable dependiente: LnDE

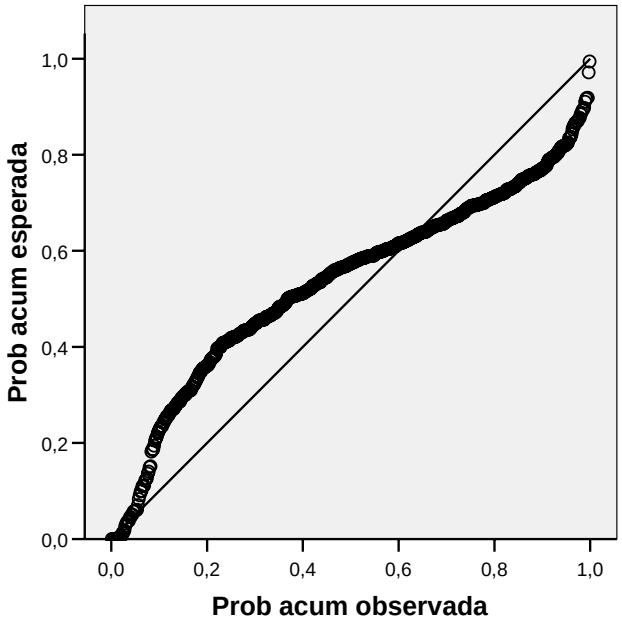
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados			Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta	t	Sig.	Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-2,450	,271		-9,027	,000	-2,983	-1,917					
	LnTobinQ	,093	,051	,076	1,829	,068	-,007	,194	,064	,080	,072	,901	1,110
	ROE	,000	,015	,000	,010	,992	-,030	,030	,026	,000	,000	,991	1,009
	MSO	2,758	1,197	,307	2,305	,022	,407	5,109	-,079	,101	,091	,087	11,445
	MSO2	-3,857	1,906	-,206	-2,023	,044	-7,602	-,111	-,075	-,089	-,080	,150	6,661
	EBO	,781	,233	,156	3,355	,001	,324	1,238	,184	,146	,132	,720	1,390
	DEBO	-,220	,201	-,074	-1,095	,274	-,614	,174	-,060	-,048	-,043	,341	2,934
	SIZE	,240	,034	,289	7,075	,000	,173	,306	,279	,297	,279	,929	1,076
	Industry	-,253	,103	-,098	-2,459	,014	-,455	-,051	-,090	-,107	-,097	,969	1,032
	GrowthTA	-,002	,001	-,090	-2,239	,026	-,003	,000	-,143	-,098	-,088	,956	1,045
	PROF	-2,278	,399	-,232	-5,713	,000	-3,061	-1,495	-,257	-,243	-,225	,938	1,066
	FCF	6,68E-005	,000	,015	,374	,709	,000	,000	-,022	,016	,015	,954	1,048
	INTA	,110	,667	,007	,165	,869	-1,200	1,421	,010	,007	,007	,971	1,030
	NDTS	-2,645	1,645	-,067	-1,608	,108	-5,876	,586	-,065	-,070	-,063	,898	1,113

a. Variable dependiente: LnDE

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnDE



Model IV – B:
(Capital Structure & Firm Performance):
Performance as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE, MSO2, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnTobinQ

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,322[a]	,104	,083	,968259002	2,081

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE, MSO2, MSO

b. Variable dependiente: LnTobinQ

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	56,288	12	4,691	5,003	,000[a]
	Residual	486,576	519	,938		
	Total	542,864	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE, MSO2, MSO

b. Variable dependiente: LnTobinQ

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-1,577499	,70707107	-,77403727	,325583144	532
Residuo bruto	-4,656199	4,4248023	,000000000	,957255702	532
Valor pronosticado tip.	-2,468	4,549	,000	1,000	532
Residuo tip.	-4,809	4,570	,000	,989	532

a. Variable dependiente: LnTobinQ

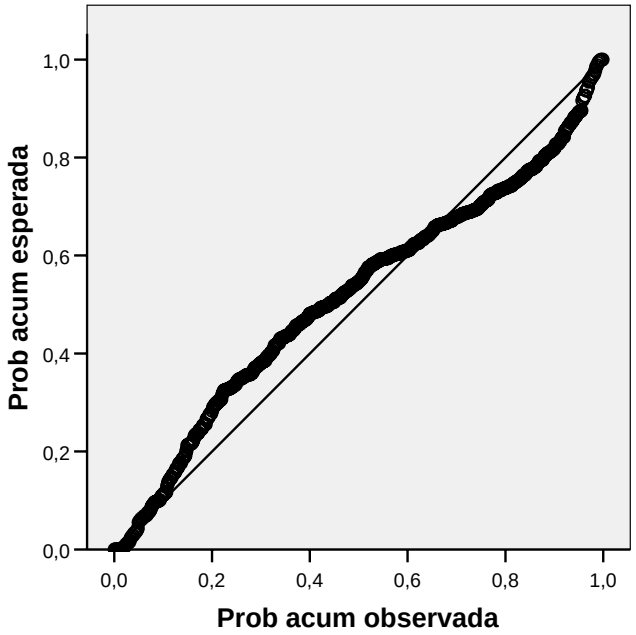
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados			Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta	t	Sig.	Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-1,007	,246		-4,087	,000	-1,491	-,523					
	LnDE	,069	,038	,085	1,832	,067	-,005	,143	,064	,080	,076	,810	1,235
	MSO	-1,718	1,028	-,235	-1,671	,095	-3,737	,302	-,024	-,073	-,069	,087	11,483
	MSO2	4,059	1,631	,266	2,489	,013	,855	7,263	,032	,109	,103	,151	6,629
	EBO	,581	,200	,143	2,904	,004	,188	,974	,154	,126	,121	,716	1,397
	DEBO	,113	,172	,047	,655	,513	-,225	,451	-,012	,029	,027	,341	2,936
	SIZE	-,050	,030	-,074	-1,646	,100	-,110	,010	-,021	-,072	-,068	,852	1,174
	Industry	,059	,089	,028	,663	,508	-,115	,233	-,012	,029	,028	,959	1,042
	GrowthTA	3,46E-005	,001	,002	,054	,957	-,001	,001	-,035	,002	,002	,947	1,056
	PROF	,130	,352	,016	,371	,711	-,561	,822	,023	,016	,015	,886	1,129
	FCF	-4,3E-005	,000	-,012	-,279	,780	,000	,000	-,012	-,012	-,012	,954	1,048
	INTA	,738	,571	,054	1,293	,197	-,384	1,860	,084	,057	,054	,974	1,026
	NDTS	7,660	1,373	,238	5,578	,000	4,962	10,358	,237	,238	,232	,948	1,055

a. Variable dependiente: LnTobinQ

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnTobinQ



Model V - A:
(Ownership Concentration & Firm Performance): Performance as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnTobinQ

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,303[a]	,092	,074	,972929328	2,074

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE

b. Variable dependiente: LnTobinQ

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	49,688	10	4,969	5,249	,000[a]
	Residual	493,174	521	,947		
	Total	542,862	531			

a. Variables predictoras: (Constante), NDTS, EBO, FCF, INTA, Industry, GrowthTA, SIZE, PROF, DEBO, LnDE

b. Variable dependiente: LnTobinQ

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-1,56580198	,69878083	-,77403677	,305898082	532
Residuo bruto	-4,63358736	4,494354725	,000000000	,963724491	532
Valor pronosticado tip.	-2,588	4,815	,000	1,000	532
Residuo tip.	-4,763	4,619	,000	,991	532

a. Variable dependiente: LnTobinQ

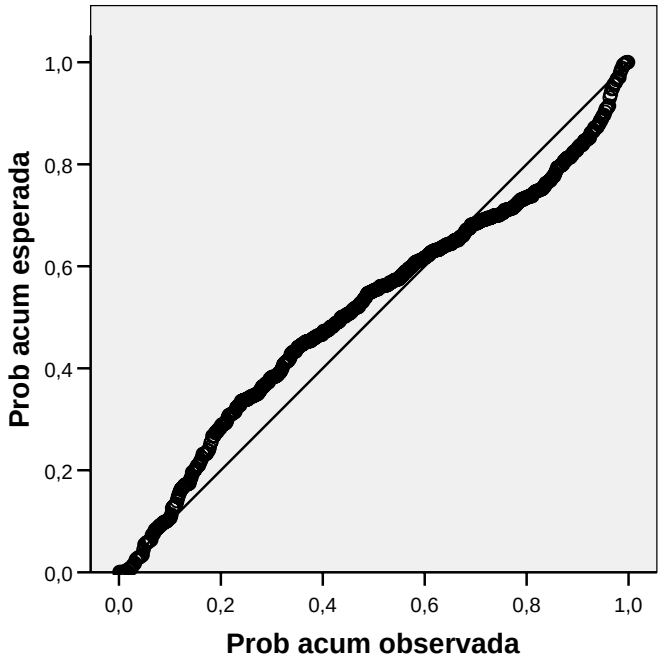
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados			Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta	t	Sig.	Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-1,134	,226		-5,015	,000	-1,578	-,690					
	LnDE	,063	,038	,078	1,679	,094	-,011	,137	,064	,073	,070	,817	1,224
	EBO	,625	,184	,153	3,392	,001	,263	,987	,154	,147	,142	,853	1,172
	DEBO	,081	,107	,034	,754	,451	-,130	,292	-,012	,033	,031	,883	1,132
	SIZE	-,041	,030	-,061	-1,366	,172	-,101	,018	-,021	-,060	-,057	,869	1,150
	Industry	,057	,089	,028	,646	,519	-,117	,232	-,012	,028	,027	,961	1,040
	GrowthTA	-4,3E-005	,001	-,003	-,068	,946	-,001	,001	-,035	-,003	-,003	,949	1,053
	PROF	,173	,351	,022	,492	,623	-,517	,863	,023	,022	,021	,897	1,114
	FCF	-4,3E-005	,000	-,012	-,280	,779	,000	,000	-,012	-,012	-,012	,957	1,045
	INTA	,773	,573	,057	1,348	,178	-,353	1,898	,084	,059	,056	,977	1,023
	NDTS	7,694	1,379	,239	5,577	,000	4,984	10,404	,237	,237	,233	,948	1,054

a. Variable dependiente: LnTobinQ

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnTobinQ



Model V - B:
(Ownership Concentration & Firm Performance): External Block Holder as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NFCF, NPROF, NLnTobinQ, NLnDE [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: NEBO

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,253[a]	,064	,048	,22732	2,041

a. Variables predictoras: (Constante), NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NFCF, NPROF, NLnTobinQ, NLnDE

b. Variable dependiente: NEBO

ANOVA [b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	1,834	9	,204	3,944	,000[a]
	Residual	26,922	521	,052		
	Total	28,756	530			

a. Variables predictoras: (Constante), NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NFCF, NPROF, NLnTobinQ, NLnDE

b. Variable dependiente: NEBO

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-,1548	,5399	,3314	,05883	531
Residuo bruto	-,54970	,47381	,00000	,22538	531
Valor pronosticado tip.	-8,265	3,545	,000	1,000	531
Residuo tip.	-2,418	2,084	,000	,991	531

a. Variable dependiente: NEBO

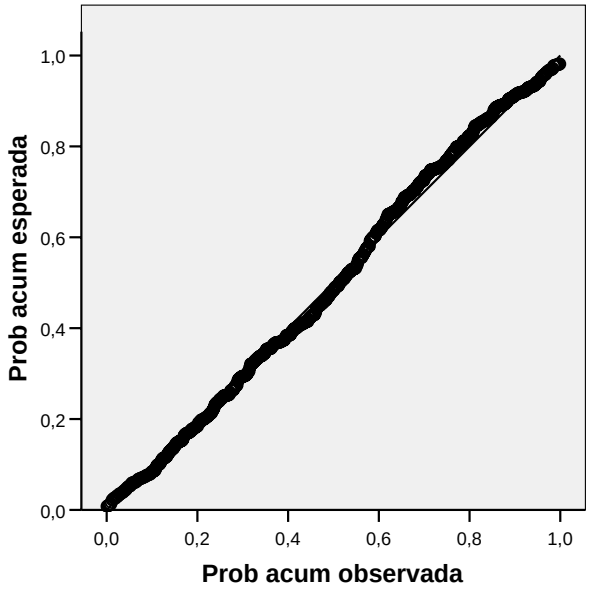
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	,335	,034		9,749	,000	,267	,402					
	NLnDE	,026	,008	,143	3,094	,002	,009	,042	,198	,134	,131	,838	1,193
	NLnTobinQ	,017	,010	,075	1,708	,088	-,002	,036	,083	,075	,072	,930	1,075
	NSIZE	,010	,007	,065	1,453	,147	-,004	,025	,113	,064	,062	,891	1,123
	NIndustry	-,018	,020	-,039	-,906	,365	-,058	,021	-,058	-,040	-,038	,974	1,027
	NGrowthTA	,000	,000	-,101	-2,334	,020	-,001	,000	-,136	-,102	-,099	,962	1,039
	NPROF	-,095	,079	-,053	-1,202	,230	-,250	,060	-,101	-,053	-,051	,912	1,097
	NFCF	-1,1E-005	,000	-,014	-,324	,746	,000	,000	-,026	-,014	-,014	,963	1,038
	NINTA	,005	,129	,002	,039	,969	-,249	,259	,002	,002	,002	,983	1,017
	NNDTS	-,013	,318	-,002	-,042	,967	-,637	,611	,002	-,002	-,002	,891	1,123

a. Variable dependiente: NEBO

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: NEBO



Model V - C:
(Insider Ownership & Firm Performance):
Performance as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, LnDE, MSO [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: LnTobinQ

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,295[a]	,087	,070	,975281177	2,042

a. Variables predictoras: (Constante), NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, LnDE, MSO

b. Variable dependiente: LnTobinQ

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	47,303	10	4,730	4,973	,000[a]
	Residual	495,561	521	,951		
	Total	542,864	531			

a. Variables predictoras: (Constante), NDTS, MSO2, GrowthTA, SIZE, INTA, Industry, FCF, PROF, LnDE, MSO

b. Variable dependiente: LnTobinQ

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-1,7748250	,69055629	-,77403727	,298466678	532
Residuo bruto	-4,6520700	4,279618740	,00000000	,966054090	532
Valor pronosticado tip.	-3,353	4,907	,000	1,000	532
Residuo tip.	-4,770	4,388	,000	,991	532

a. Variable dependiente: LnTobinQ

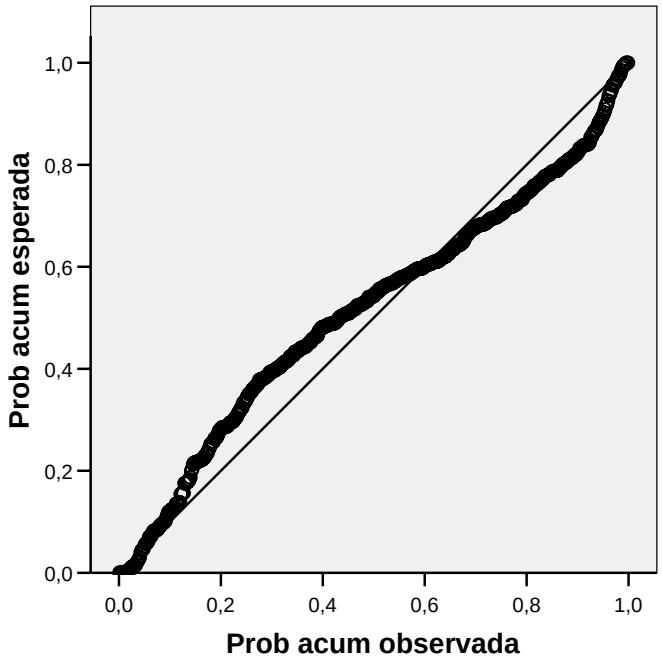
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados	t	Sig.	Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta			Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	-,624	,207		-3,014	,003	-1,031	-,217					
	LnDE	,085	,037	,105	2,278	,023	,012	,158	,064	,099	,095	,831	1,203
	MSO	-2,113	,736	-,290	-2,872	,004	-3,559	-,668	-,024	-,125	-,120	,172	5,801
	MSO2	4,527	1,522	,297	2,974	,003	1,536	7,518	,032	,129	,124	,176	5,694
	SIZE	-,056	,031	-,083	-1,843	,066	-,116	,004	-,021	-,080	-,077	,856	1,168
	Industry	,055	,089	,027	,621	,535	-,120	,231	-,012	,027	,026	,959	1,042
	GrowthTA	,000	,001	-,014	-,335	,738	-,001	,001	-,035	-,015	-,014	,963	1,039
	PROF	,077	,353	,010	,217	,828	-,617	,770	,023	,009	,009	,893	1,120
	FCF	-4,0E-005	,000	-,011	-,258	,797	,000	,000	-,012	-,011	-,011	,957	1,045
	INTA	,785	,575	,058	1,364	,173	-,345	1,914	,084	,060	,057	,975	1,026
	NDTS	7,716	1,382	,240	5,581	,000	5,000	10,431	,237	,238	,234	,949	1,054

a. Variable dependiente: LnTobinQ

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: LnTobinQ



Model V - D:
(Insider Ownership & Firm Performance):
Managerial Share Ownership as Endogenous Variable

Variables introducidas/eliminadas [b]

Modelo	Variables introducidas	Variables eliminadas	Método
1	NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NPROF, NFCF, NLnTobinQ, NLnDE [a]	.	Introducir

a. Todas las variables solicitadas introducidas

b. Variable dependiente: NMSO

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,192[a]	,037	,020	,13488	1,994

a. Variables predictoras: (Constante), NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NPROF, NFCF, NLnTobinQ, NLnDE

b. Variable dependiente: NMSO

ANOVA[b]

Modelo		Suma de cuadrados	gl	Media cuadrática	F	Sig.
1	Regresión	,364	9	,040	2,226	,019[a]
	Residual	9,478	521	,018		
	Total	9,843	530			

a. Variables predictoras: (Constante), NNDTS, NSIZE, NGrowthTA, NINTA, NIndustry, NPROF, NFCF, NLnTobinQ, NLnDE

b. Variable dependiente: NMSO

Estadísticos sobre los residuos [a]

	Mínimo	Máximo	Media	Desviación típ.	N
Valor pronosticado	-,0646	,1676	,0869	,02622	531
Residuo bruto	-,20125	,67512	,00000	,13373	531
Valor pronosticado tip.	-5,778	3,078	,000	1,000	531
Residuo tip.	-1,492	5,005	,000	,991	531

a. Variable dependiente: NMSO

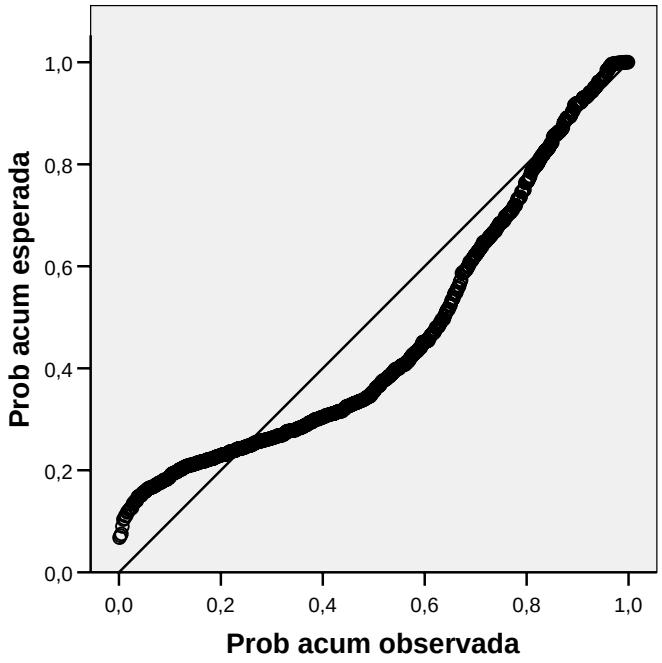
Coeficientes[a]

Modelo		Coeficientes no estandarizados		Coeficientes estandarizados			Intervalo de confianza para B al 95%		Correlaciones			Estadísticos de colinealidad	
		B	Error típ.	Beta	t	Sig.	Límite inferior	Límite superior	Orden cero	Parcial	Semiparcial	Tolerancia	FIV
1	(Constante)	,137	,024		5,718	,000	,090	,184					
	NLnDE	,000	,005	-,002	-,037	,970	-,010	,010	-,065	-,002	-,002	,833	1,200
	NLnTobinQ	,001	,006	,008	,173	,863	-,011	,013	,005	,008	,007	,930	1,075
	NSIZE	-,012	,004	-,128	-2,814	,005	-,020	-,004	-,141	-,122	-,121	,887	1,128
	NIndustry	,014	,012	,050	1,141	,255	-,010	,038	,047	,050	,049	,970	1,031
	NGrowthTA	2,64E-005	,000	,013	,303	,762	,000	,000	,025	,013	,013	,964	1,037
	NPROF	,087	,048	,082	1,815	,070	-,007	,182	,084	,079	,078	,908	1,101
	NFCF	1,06E-005	,000	,022	,499	,618	,000	,000	,043	,022	,021	,961	1,041
	NINTA	-,165	,079	-,091	-2,102	,036	-,320	-,011	-,091	-,092	-,090	,984	1,017
	NNDTS	-,020	,194	-,005	-,103	,918	-,401	,361	-,007	-,005	-,004	,894	1,119

a. Variable dependiente: NMSO

Gráfico P-P normal de regresión Residuo tipificado

Variable dependiente: NMSO



Appendix 7

Corrected Autocorrelation Test (Model V – E, F, G, H)

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,175[a]	,031	,024	,18314	2,042

a. Variables predictoras: (Constante), NNDTS, NFCF, NLnDE, NIndustry, NINTA, NTobinQ, NGrowthTA, NSIZE, NPROF

b. Variable dependiente: NEBO

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,150[a]	,022	,016	,18384	2,055

a. Variables predictoras: (Constante), NNDTS, NFCF, NROE, NLnDE, NIND, NINTA, NGrowthTA, NPROF, NSIZE

b. Variable dependiente: NEBO

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,313[a]	,098	,092	,09849	2,002

a. Variables predictoras: (Constante), NNDTS, NFCF, NLnDE, NIND, NINTA, NTobinQ, NGrowthTA, NPROF, NSIZE

b. Variable dependiente: NMSO

Resumen del modelo [b]

Modelo	R	R cuadrado	R cuadrado corregida	Error típ. de la estimación	Durbin-Watson
1	,192[a]	,037	,020	,13487	2,001

a. Variables predictoras: (Constante), NNDTS, NROE, NGrowthTA, NSIZE, NINTA, NIndustry, NFCF, NPROF, NLnDE

b. Variable dependiente: NMSO